Mini System FW750C/21S/22/22S/25/30S/34S/37/41S

Service
Service
Service

Service Manual

TABLE OF CONTENTS

Page
Location of pc boards & Version variations 1-2
Technical Specifications 1-3
Measurement setup 1-4
Service Aids, Safety Instruction, etc. 1-5
Instruction for use: European version excerpt 2-1
Additional Features - others ... 2-10
Disassembly Instructions & Service positions 3-1
Service Test Programs 3-4
Set Block diagram & Wiring diagram 4
HVC Board 5
Front Board: HVC version 6
Non-HVC version 6A
Tuner Board: ECO5 Sys 7B
Tuner 95 .... 7D
Karaoke Board 8
ETF2 Tape Module 9
CDC-3 Module 10
Power 1 Module 11
AF3 Board 12
Set Mechanical Exploded view & parts list 13
Loudspeaker Box 14

Published by Consumer Electronics Printed in The Netherlands © Copyright reserved Subject to modification 4822 725 25686

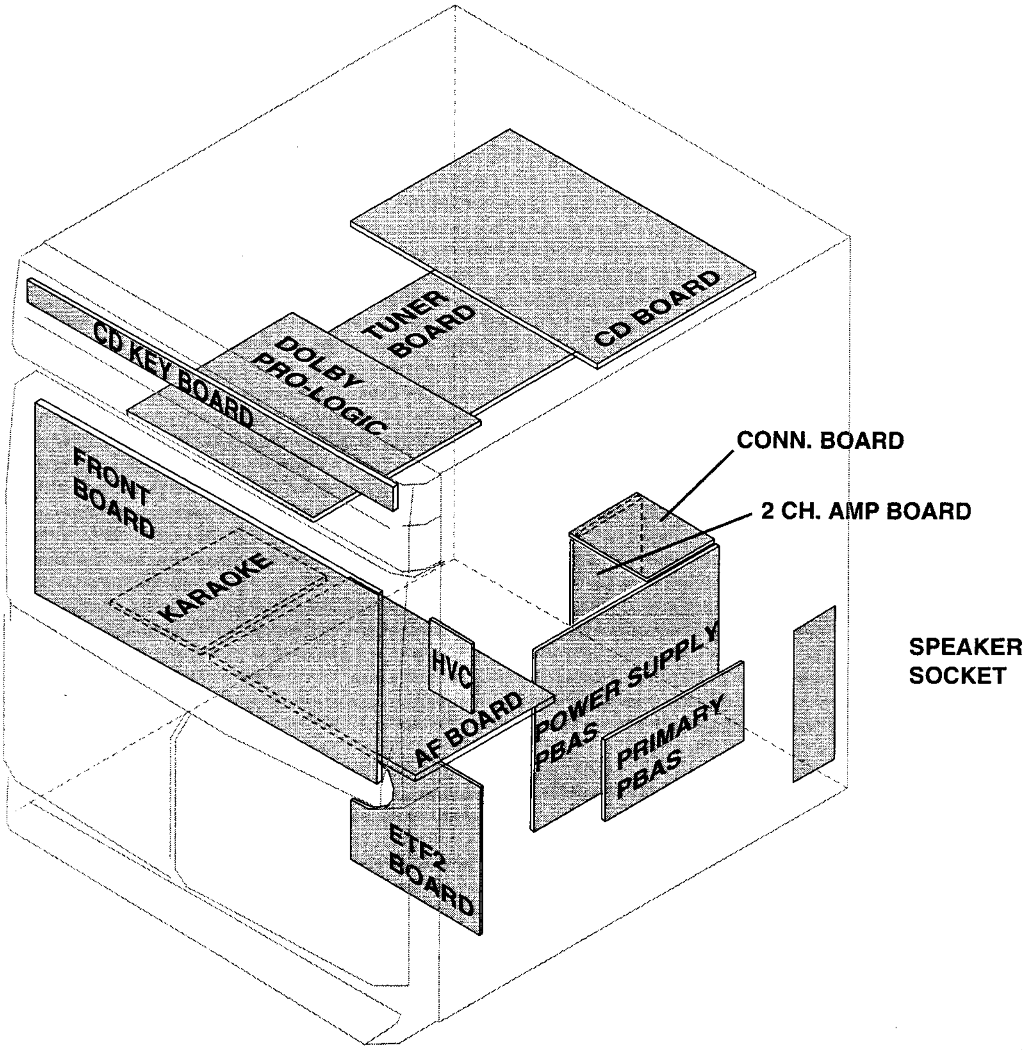
PCS 90 484

PHILIPS

PHILIPS

783

LOCATION OF PRINTED CIRCUIT BOARD


CD BOARD
TUNER BOARD
DOLBY PRO-LOGIC
CD KEY BOARD
FRONT BOARD
KARAOKE
CONN. BOARD
2 CH. AMP BOARD
HVC
AF BOARD
POWER SUPPLY PBAS
PRIMARY PBAS
SPEAKER SOCKET
ETF2 BOARD

VERSION VARIATIONS:

Features & Board in used: / Versions:	/21S /41S	/22 /22S	/25	/26	/30S	/33S	/34S	/37
Dolby B		x	x				x	
RDS		x	x				x	
Hydraulic volume control	x					x	x	
Karaoke Feature	x					x		
Digital Output								
Front board - HVC version	x					x	x	
Front board - non-HVC version		x	x		x			x
Tuner board - ECO5 Sys	x				x	x	x	x
Tuner board - Tuner 95		x	x					
Tape pc board - ND/DD/FR	x				x	x		x
Tape pc board - DB/DD/FR		x	x				x	
Power module - 2 x 70W		x	x					
Power module - 2 x 100W	x				x	x	x	x *

* or Passive surround of 4 x 35W

SPECIFICATIONS

GENERAL:

Mains voltage : 100V for /26
110-127/220-240V Switchable for /21S/41S
120V for /37
220V for /33S
220-230V for /22/22S/34S
230V for /25
230-240V for /30S
Mains frequency : 50/60Hz
Power consumption : < 5W at power mode OFF
< 16W at clock mode - FTD on
: < 160W at 1/8 rated power out
Mains Breakdown Buffer : No
Clock accuracy : < 4 seconds per day
Dimension centre unit : 265 x 310 x 363mm

TUNER:

FM
Tuning range : 87.5-108MHz
65.81-74MHz for /34S
Grid : 50kHz (& 30kHz for /34S)
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75ohm coaxial
300ohm click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 50dB
Image rejection : > 25dB [75dB]
Distortion at RF=1mV, dev. 75kHz : < 3% [2%]
-3dB Limiting point : < 7µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB [26dB]

MW
Tuning range : 531-1602kHz
530-1700kHz for /21S/37/41S
Grid : 9kHz
10kHz for /21S/37/41S
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.0mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5%

LW
Tuning range : 153-279kHz
Grid : 3kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < [7.0mV/M]
Selectivity at 18kHz bandwidth : > [24dB]
IF rejection : > [26dB]
Image rejection : > [35dB]
Distortion at RF=50mV, m=80% : < [5%]

AMPLIFIER:

Output power (D=10%) 2) : 2 x 100W at 6 ohm or
4 x 35W at 6 ohm for /37
: 2 x 70W at 6 ohm for /22/22S/25
Frequency response within -3dB : 60Hz-15kHz
Dynamic Bass Boost: DBB1, DBB2, DBB3, DBB Off 1)
Digital Sound Control: Classic, Rock, POP, Optimal, Jazz or Techno 1)
Incredible Surround: IS3, IS2, IS1, IS Off 1)
Headphone output at 32 ohm : 16.5mW
Input sensitivity Aux/Line-in : 350mV ± 2dB at 47kohm
Mic : 2.5mV ± 2dB at 10kohm
Output sensitivity Line-out : 350mV ± 2dB at 2.2kohm
Sub-woofer (max. vol.) : 500mV ± 2dB at 2.2kohm

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
1.8 x 4.76 cm/sec
Wow and flutter : < 0.6% DIN
Fast-wind time C60 : 130 sec
Bias system : 75kHz ± 5kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to noise ratio : > 44dB
Dolby NR Factor : > 8.5dB

COMPACT DISC:

Measurement done at output conn. of the CDC module.
Frequency response within ± 3dB : 20Hz - 20kHz
Output level (in Vrms) : 550mV ± 2dB unloaded
Signal/Noise ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.5%
Channel difference at 1kHz : < 1dB
Channel crosstalk at 1kHz : > 45dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

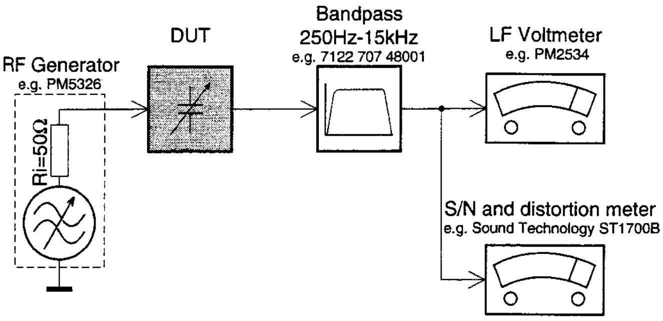
Hydraulic Volume Control (HVC) characteristics:

Transmission & reception : Infra Red
Detection distance : 5-30cm
Colour detection : Not possible with dark objects
Travel duration in one direction : 2-2.5 seconds

[....] Values indicated are for "Tuner 95 Board" only
1) Frequency response in each setting is software controlled.
2) See Power variation on page 1-2.

MEASUREMENT SETUP

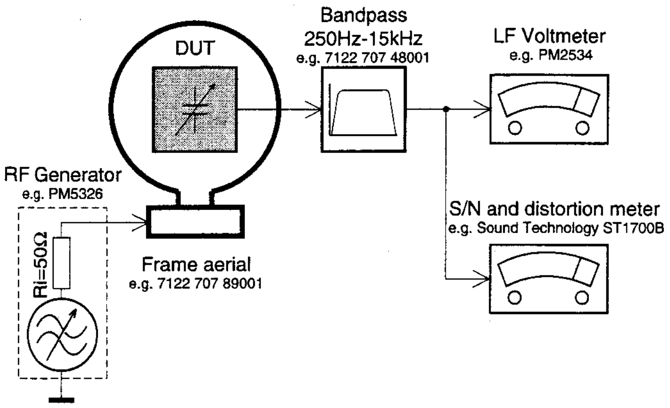
Tuner FM



DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

Tuner AM (MW,LW)

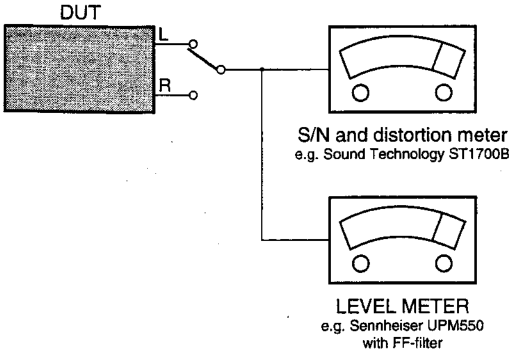


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
S/N and distortion meter
e.g. Sound Technology ST1700B
Ri=50Ω
Frame aerial
e.g. 7122 707 89001

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

CD

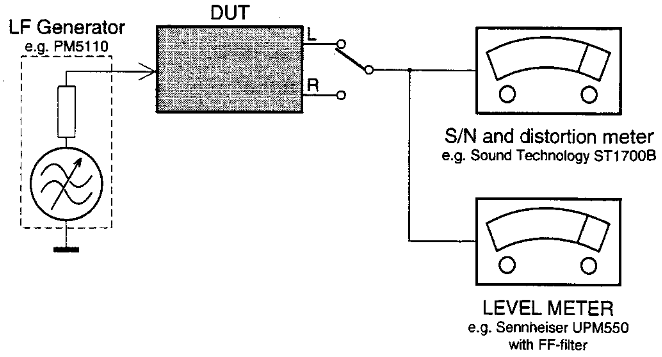
Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



DUT
LF Generator
e.g. PM5110
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

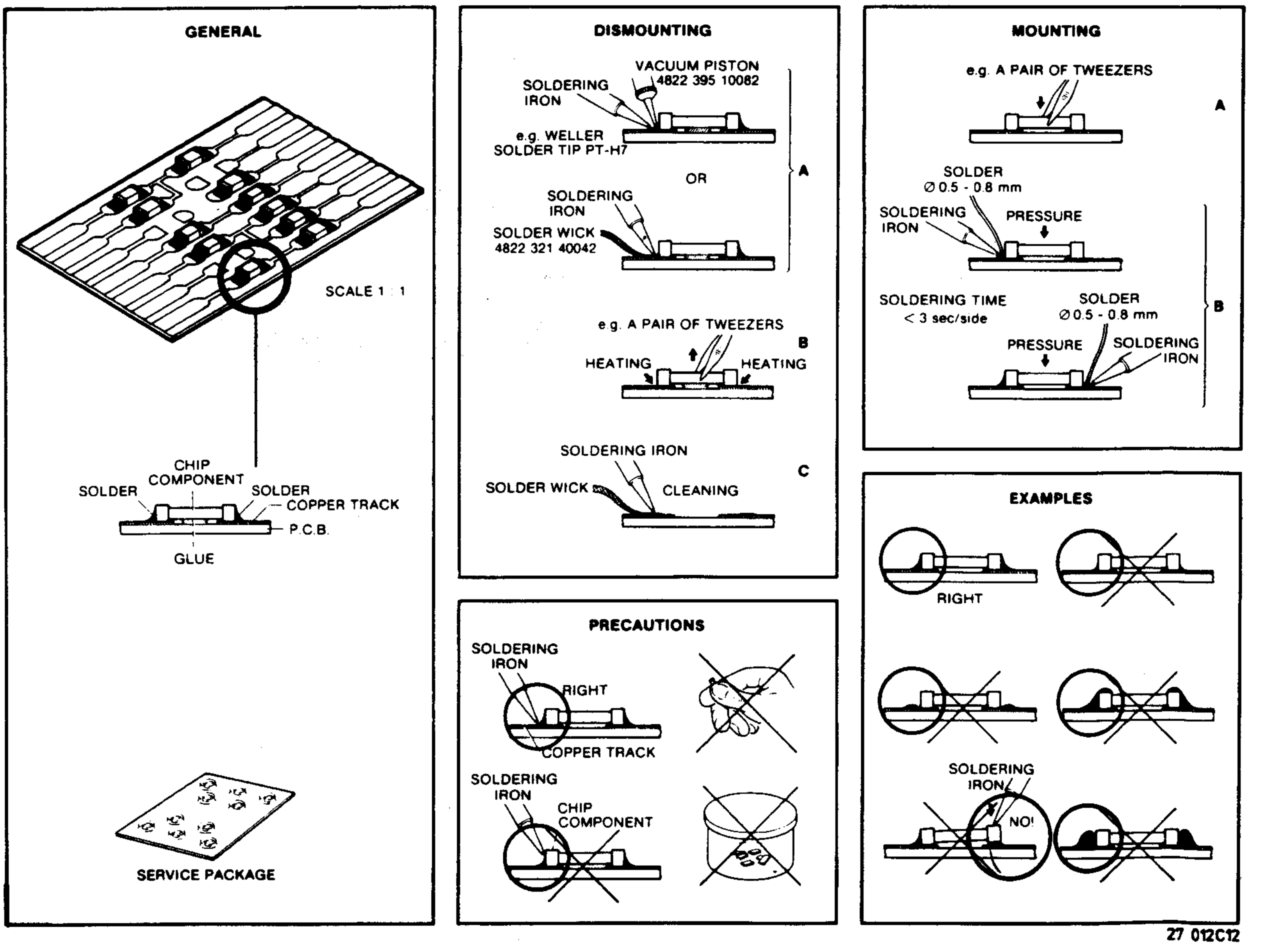
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
C
SOLDER WICK
CLEANING
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
< 3 sec/side
SOLDER
Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!
27 012C12

ESD

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

CLASS 1
LASER PRODUCT
3122 110 03420

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

General Information

- The typeplate is located at the rear of the set.
- Recording is permissible if copyright or other rights of third parties are not infringed.

1 All unnecessary packaging material has been omitted. We have done our utmost to make the packaging easy to separate into three mono-materials:
   - cardboard (box)
   - expandable polystyrene (buffer)
   - polythene (bags, protective foam sheet).

   Please observe the local regulations regarding the disposal of these packaging materials.

2 Your set consists of materials which can be recycled and reused if disassembled by a specialized company. Please follow local regulations on recycling your old set.

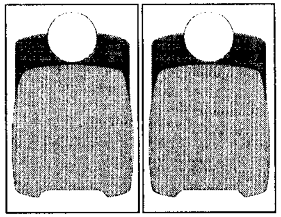
3 Do not dispose exhausted batteries with your household waste. Dispose batteries according to local regulations.

4 Note: Switching off the standby mode overnight (remove the AC power cord from the wall socket) will save energy.

Safety Information

- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The type plate is located at the rear of your system.
- When the system is switched on, do not move it around.
- Place the system on a solid base (e.g. a cabinet).
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the unit yourself, as this will invalidate the warranty!
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the CD unit inside the system. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the unit until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

Speakers



Accessories (Supplied)

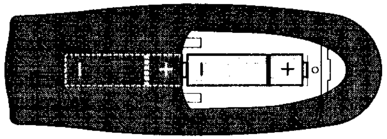
- Remote control transmitter
- Batteries (2 x AAA size) for remote control transmitter
- AM loop antenna
- FM antenna wire
- AC power cord

Accessories (Recommended)

- Philips FB 201 active subwoofer.

Inserting the batteries into the Remote Control

- Insert the batteries (Type R03 or AAA) into the remote control transmitter as shown in the battery compartment.



- To avoid damage from possible battery leakage, remove exhausted batteries or batteries that will not be used for a long time. For replacement use type R03 or AAA batteries.

Rear Connection

Ⓐ AM Antenna Connection

Connect the supplied loop antenna to the AM AERIAL terminal. Adjust the position of the AM loop antenna for the best reception. (see figure on page 5)

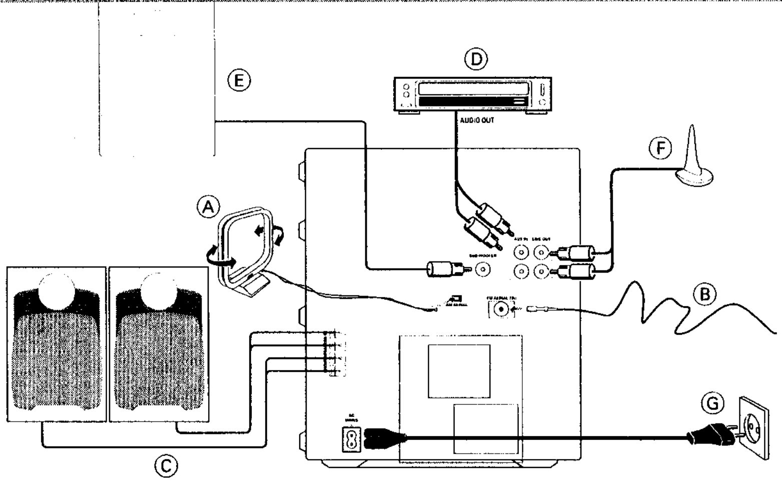
Ⓑ FM Wire Antenna Connection

Connect the supplied FM wire antenna to the FM 75 Ω terminal. Adjust the position of the FM antenna for the best reception. (see figure on page 5)

Outdoor Antenna

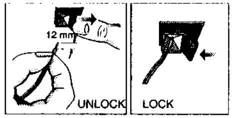
For better FM stereo reception connect an outdoor FM antenna to the FM AERIAL 75 Ω terminal using a 75 Ω coaxial wire.

Rear Connection



Ⓒ Speaker Connections

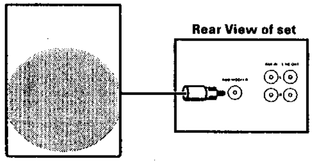
- Connect the right speaker to terminal **R**, with the red wire to + and the black wire to –.
- Connect the left speaker to terminal **L**, with the red wire to + and the black wire to –.
- Clip the stripped portion of the speaker wire as shown.



Ⓓ Connecting other equipment to your system

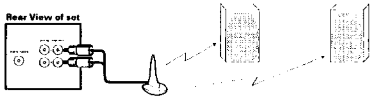
You can connect TV, Laser Disc player, VCR or DVD (Digital Video Disc) audio left and right outputs to the AUX IN terminal at the rear of the system.

Ⓔ Subwoofer Out (optional)



You can connect either an external active subwoofer (recommended Philips FB 201) to the SUBWOOFER OUT socket. The subwoofer is dedicated to reproducing just the low bass effect (e.g. explosions, the rumble of the spaceships, etc.). Be sure to follow the instructions supplied with the subwoofer unit.

Ⓕ Line Out for remote active speakers (Ready)



There is a possibility of locating additional front active speakers away from the system (e.g. in another room). It reduces the inconvenience of running long speaker wires across rooms. You can place as many remote speakers as you like provided that they operate at the same radio frequency. Connect the wireless radio frequency transmitter to the LINE OUT sockets. Place the active speakers at your prefered location. Be sure to follow the instructions supplied with the active speakers.

Ⓖ C Power Supply

After all other connections have been made, connect the AC power socket to the set and the AC power plug to the wall outlet.

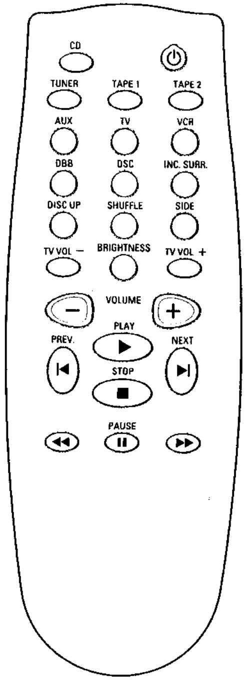
Remote Control

Remote Control Functions

- First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. TUNER, TAPE 1, TAPE 2, CD, AUX, TV or VCR).
- Then select the desired function (PLAY, NEXT, etc.).

Notes:

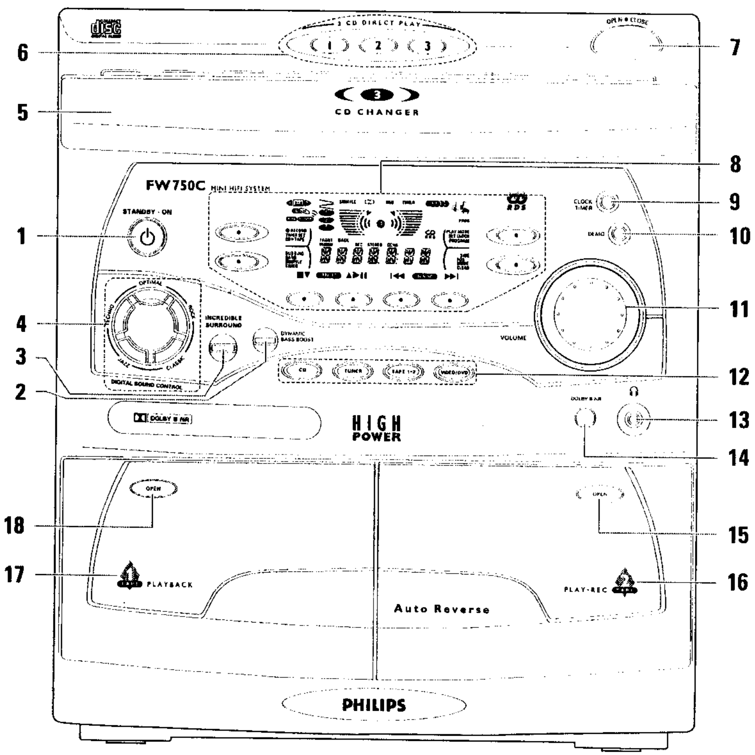
- Whenever a remote control button is pressed, the source icon on the display will flicker. This indicates the remote control signal is received by the set.
- For TV/VCR operation, the TV or VCR must use the RC-5 code remote control system.


CD
⏻
TUNER
TAPE 1
TAPE 2
AUX
TV
VCR
DBB
DSC
INC. SURR.
DISC UP
SHUFFLE
SIDE
TV VOL –
BRIGHTNESS
TV VOL +
VOLUME
PLAY
PREV.
NEXT
STOP
PAUSE

⏻	to switch the unit to standby mode.
CD	to select CD mode.
TUNER	to select TUNER mode.
TAPE 1	to select TAPE DECK 1.
TAPE 2	to select TAPE DECK 2.
AUX	to select VIDEO/DVD or external mode.
TV	to select TV mode.
VCR	to select VCR mode.
DBB	to switch on or off dynamic bass boost.
DSC	to select digital sound control: JAZZ, CLASSIC, ROCK, TECHNO or OPTIMAL.
INC. SURR.	to switch on or off the Incredible surround sound effect.
DISC UP	to select the next disc tray for playback.
SHUFFLE	to play CD tracks at random.
SIDE	to select the direction of play for TAPE DECK 2.
BRIGHTNESS	to select the brightness level of the display screen.
TV VOLUME +/–	to adjust the TV (RC 5 code) volume.
VOLUME +/–	to adjust the volume of the system.
PLAY ▶	to start playback in CD, TAPE or VCR mode.
STOP ■	to stop playback in CD, TAPE or VCR mode.
⏮ PREV. / NEXT ⏭	
for TUNER	to select a lower/higher tuner preset station.
for CD	to select previous/next CD track.
for TV/VCR	to select previous/next channel.
PAUSE ⏸	to interrupt play in CD, TAPE or VCR mode.
◀◀ / ▶▶	
for TUNER	to select a lower/higher frequency.
for CD	to search a particular passage.
for TAPE	to fast rewind/forward the cassette.

Controls

Front View


6
5
1
4
3
2
18
17
7
8
9
10
11
12
13
14
15
16
CD DIRECT PLAY
1
2
3
OPEN • CLOSE
CD CHANGER
FW750C
STANDBY · ON
CLOCK TIMER
DEMO
INCREDIBLE SURROUND
DYNAMIC BASS BOOST
DIGITAL SOUND CONTROL
OPTIMAL
CLASSIC
VOLUME
CD
TUNER
TAPE 1•2
VIDEO/DVD
DOLBY B NR
HIGH POWER
OPEN
PLAYBACK
PLAY-REC
Auto Reverse
PHILIPS

Front View

1 **STANDBY - ON**
  - to switch the set on or to standby mode.

2 **DYNAMIC BASS BOOST (DBB)**
  - to switch on bass boost to enhance bass response or to switch off bass boost.

3 **INCREDIBLE SURROUND**
  - to switch on or off the Incredible Surround sound effect.

4 **DIGITAL SOUND CONTROL (DSC)**
  - to select the desired sound effect : JAZZ, TECHNO, OPTIMAL, ROCK or CLASSIC.

5 **CD CAROUSEL TRAY**

6 **3 CD DIRECT PLAY**
  - to select play for each CD in the tray.

7 **OPEN•CLOSE**
  - to open or close the CD carousel tray.

8 **MAGIC MENU USER INTERFACE AND DISPLAY**
  - to select the respective control functions for Tuner, CD, Tape and Video/DVD.

9 **CLOCK•TIMER**
  - to set clock or timer.

10 **DEMO**
  - to display the various features offered by the system.

11 **VOLUME**
  - to adjust the volume level.

12 **SOURCE SELECTION**
  - to select the following:

CD : to switch to CD mode.
TUNER : to switch to Tuner mode.
TAPE 1-2 : to switch to Tape 1 or 2 mode.
VIDEO/DVD : to switch to external sources (e.g. DVD, TV, Laser Disc or VCR sound).

13 **HEADPHONES 🎧**
  - to connect headphones jack.

14 **Dolby B NR**
  - to switch on or off the Dolby B NR mode.

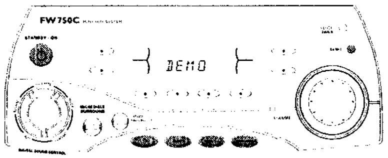
15 **OPEN**
  - to open TAPE DECK 2 cassette compartment.

16 **TAPE DECK 2**

17 **TAPE DECK 1**

18 **OPEN**
  - to open TAPE DECK 1 cassette compartment.

Demo mode



The system has a demonstration mode that shows the various features offered by the system. Whenever the system is switched on from the wall socket, the demonstration mode will start automatically.

To stop demonstration mode
- Press **DEMO**, **STANDBY - ON**, **CD**, **TUNER**, **TAPE 1-2**, **VIDEO/DVD**, CD **OPEN•CLOSE** or **3 CD DIRECT PLAY** button on the system (or ⏻, **CD**, **TUNER**, **TAPE 1**, **TAPE 2**, **AUX**, **TV** or **VCR** on remote control) to stop the demonstration mode.

To switch on demonstration mode
- Press **DEMO**.
  → The display will show "DEMO", then a demonstration of the various features will follow.

Important:
Before you begin operating the system, complete the preparation procedures.

Switching the system ON

- Press **STANDBY-ON**, **CD**, **TUNER**, **TAPE 1-2** or **VIDEO/DVD** (or **CD**, **TUNER**, **TAPE 1**, **TAPE 2** or **AUX** on the remote control).

  You can also switch on the system by pressing the **OPEN•CLOSE** or any one of the **3 CD DIRECT PLAY** buttons.

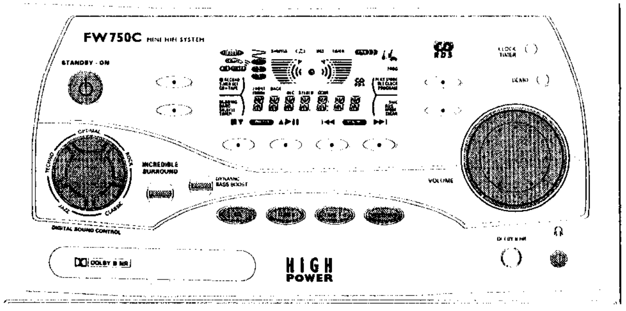
Switching the system to standby mode

- Press **STANDBY-ON** again (or ⏻ on the remote control).

Volume Adjustment

Rotate **VOLUME** right or left (or press **VOLUME** + or − on the remote control) to increase or decrease the sound level.

For Personal Listening
Connect the headphones jack to the 🎧 socket at the front of the set. The speakers will be muted.



Selecting the Sound Source

- Press the respective source selection: **CD**, **TUNER**, **TAPE 1-2** or **VIDEO/DVD** (or **CD**, **TUNER**, **TAPE 1**, **TAPE 2** or **AUX** on the remote control).
  → The display indicates the selected sound source.

Note:
For external source, ensure that you had connected the audio left and right outputs of the external equipment (TV, VCR, Laser Disc player or DVD) to the AUX IN sockets.

Digital Sound Control (DSC)

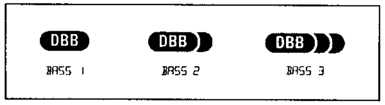
The DSC feature creates a realistic atmosphere for the style of music you select using the latest digital sound technology.

- To enjoy a special sound effect, press **JAZZ** (♪), **TECHNO** (♪), **CLASSIC** (♪), **ROCK** (♪) or **OPTIMAL**.
- You can also press **DSC** on the remote control to select the respective sound setting.

Dynamic Bass Boost (DBB)

There are 3 settings for the DBB mode to enhance the bass response. You can press DBB on the set or remote control.

- Press **DBB** briefly to select the various level of bass boost.
  → The DBB button lights up.
  → The display message "BASS 1, 2 or 3" will scroll across the display.
  → The display will be as follows:

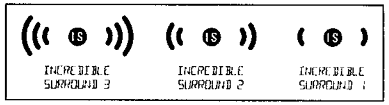


To switch off DBB
- Press **DBB** briefly until the DBB button light is switched off and "BASS OFF" scroll across the display.

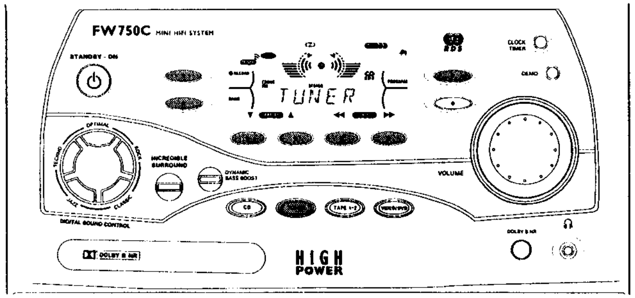
Incredible Surround

There are 3 settings for the Incredible Surround sound mode to create a phenomenal surround sound effect. You can press Incredible Surround on the set or remote control.

- Press **INCREDIBLE SURROUND** to select the various level of surround sound.
  → The INCREDIBLE SURROUND button lights up.
  → The display message "INCREDIBLE SURROUND 3, 2 or 1" will scroll across the display.
  → The display will be as follows:

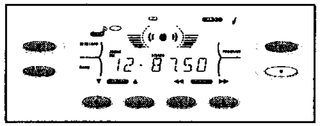


To switch off Incredible Surround
- Press **INCREDIBLE SURROUND** until the INCREDIBLE SURROUND button light is switched off and "INCREDIBLE SURROUND OFF" scroll across the display.



Tuning to radio stations

1 Press **TUNER** on the unit or on the remote control to select TUNER mode.
   → First 'TUNER' appears on the display and after a few seconds it will show the current frequency or the station name if available.
   The available display button functions light up:



2 Press BAND to select the desired waveband : FM, MW or LW *(not for all versions)*.
3 Press TUNING ◀◀ or ▶▶ for more than one second and release.
   → The display will show 'SEARCH' until a station with sufficient signal strength is found.

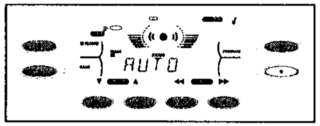
- Repeat this procedure until the desired station is reached.
- To tune to a weak station, briefly press TUNING ◀◀ or ▶▶ until the display shows the right frequency and/or when the best reception has been obtained.

Note:
If you briefly press TUNING ◀◀ or ▶▶ (◀◀ or ▶▶ on the remote control), the frequency changes step by step.

Storing Preset Stations

You can store up to 20 stations in the memory. When a preset station is selected, the preset number appears next to the frequency on the display.

Automatic programming

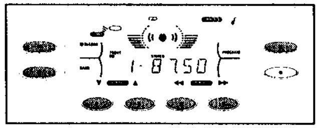


1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for more than one second.
   → PROGRAM flashes and 'AUTO' is displayed.
   → Every available station will be stored automatically. The frequency and preset number will be displayed briefly.
   → It will stop searching when all the available stations are stored or the memory for 20 preset stations is used.
   → The set will remain tuned to the last stored preset number.

- You can cancel the automatic programming by pressing PROGRAM or ■.

Note:
If you want to reserve a section of preset numbers, for example preset number 1 to 9, select preset 10 before starting automatic programming: now only the preset numbers 10 to 20 will be programmed.

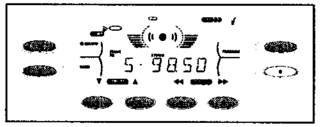
Manual programming
1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for less than one second.
   → PROGRAM flashes on the display.



3 Press BAND to select the desired waveband : FM, MW or LW *(not for all versions)*.
4 Press TUNING ◀◀ or ▶▶ to tune to the desired frequency.
5 Press PRESET ▼ or ▲ (or **PREV ⏮ / NEXT ⏭** on the remote control) to select a preset number.
6 Press PROGRAM again.
   → PROGRAM stop flashing, and the station is stored.

- Repeat the above procedure to store other preset stations.

Tuning to Preset Stations



- Press PRESET ▼ or ▲ (or **PREV ⏮ / NEXT ⏭** on the remote control) to select the desired preset number.
   → The preset number, frequency and waveband appear on the display.

● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP** ■ on the remote control).

Switching LW on or off *(not for all versions)*

Some countries can received LW band. You can then switch on or off the LW band.

While in TUNER mode, press the **TUNER** button for ***more than 5 seconds***. Display will shows "LW ON" or "LW OFF".

Receiving RDS radio station

(not for all versions)

RDS (Radio Data System) is a broadcasting service that allows FM stations to send additional information along with the regular FM radio signal. This additional information can contain:

- **STATION NAME :** The station name is displayed.
- **FREQUENCY :** The frequency of the station is displayed.
- **PROGRAM TYPE :** The following program types exist and can be received by your tuner: News, Affairs, Info, Sport, Educate, Drama, Culture, Science, Varied, Pop M, Rock M, M.O.R. (middle of the road music), Light M, Classics, Other M, No type.
- **RADIO TEXT (RT) :** text messages appear in the display.

When you have tuned to a RDS station, the RDS logo (and the station name will appear on the display:

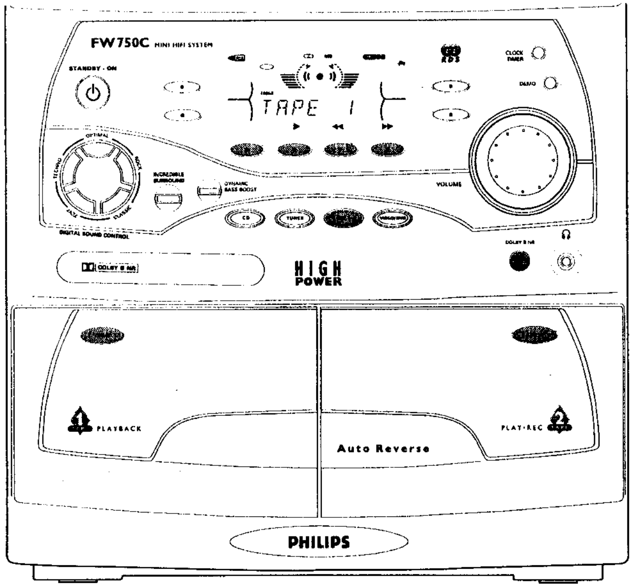
- The display normally shows the radio station name if available.
  By repeatedly pressing RDS MODE you can change the type of display information:
   → The display shows in turn:
   STATION NAME → FREQUENCY → PROGRAM TYPE → RADIO TEXT → STATION NAME ...

Note:
When you press the RDS MODE button and the display shows "NO RDS", it indicates that either the tuned station is not transmitting RDS signal or it is a non RDS station.

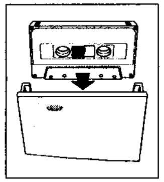
RDS Clock

Some RDS station may be transmitting a real time clock at an interval of every minute.

Setting the time with RDS clock:
1 Press **CLOCK•TIMER**.
2 Press SET CLOCK.
   → *"00:00"* starts flashing.
3 Press RDS MODE button.
   → The message "SEARCH RDS CLOCK" will continue scroll across the display.
   → If the station does not transmit RDS time within 90 seconds, the message "NO RDS CLOCK" appears.
   → When the RDS clock is read, the message "READ AND SET CLOCK" appears. The current clock time is displayed for 2 seconds and will be stored automatically.



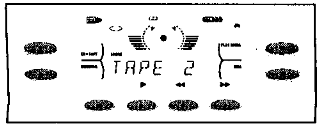
Loading a cassette



- Press **OPEN**.
- The cassette compartment door opens.
- Load the cassette with the open side downward and the full spool to the left.
- Close the cassette compartment door.
  → The deck automatically selects the cassette type (NORMAL or CHROME (CrO_2).

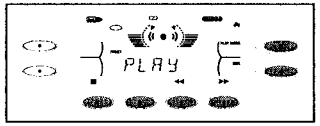
Tape Playback

1 Press **TAPE 1-2** (or **TAPE 1** / **TAPE 2** on the remote control) to select either TAPE DECK 1 or TAPE DECK 2 mode.



2 Load the cassette into the desired **cassette deck**.

3 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.



3a (For Tape Deck 2 only)
Press SIDE (or **SIDE** on the remote control) to change the direction of the play mode.
→ The FRONT or BACK flag appears in the display, depending on the side selected.

3b (For Tape Deck 2 only)
Press PLAY MODE to select the different type of play mode (see continuous playback).

4 Press ■ (or **STOP** ■ on the remote control) to end playback.

Note:
When the cassette has stopped playing, the set will switch to the standby mode automatically after 15 minutes if no button is pressed.

Continuous Playback (only on TAPE DECK 2)

The PLAY MODE enables you to select the different play modes.

⇆ : recording or playback on one side of the cassette in the normal or reverse direction. The cassette stops at the end of one side.
⊐ : recording or playback on both sides of the cassette; first in one direction and then in the reverse direction. The cassette then stops.
⊂⊃ : continuous playback on both sides of the cassette up to a maximum of 5 times per side unless you press ■.

Winding/Rewinding

At the stop mode

1 You can rewind or wind the cassette by pressing ◀◀ or ▶▶, (◀◀ or ▶▶ on the remote control) respectively.
→ The cassette will stop automatically at the end of the winding or rewinding

2 Press ■ (or **STOP** ■ on the remote control) to stop winding or rewinding.

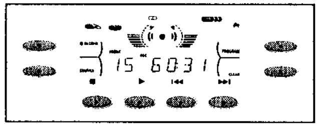
During playback

1 You can search for a particular passage or beginning of a track by pressing and holding ◀◀ or ▶▶, (◀◀ or ▶▶ on the remote control) respectively.
→ During searching, the sound is reduced to a low volume.
→ When you release ◀◀ or ▶▶, the cassette continues playing.

Note:
During winding or rewinding a cassette, it is possible to select another source mode (e.g. TUNER, CD or VIDEO/DVD mode).

Recording from other sources (only on TAPE DECK 2)

1 Press **TAPE 1-2** to select **tape deck 2**.
2 Load a blank cassette into **tape deck 2**.
3 Press SIDE to change to the desired direction of the play mode.
→ The FRONT or BACK flag appears in the display, depending on the side selected.
4 Press PLAY MODE to select the play mode (⇆ or ⊐).
5 Press **CD**, **TUNER** or **VIDEO/DVD**.



6 Press ● RECORD to start recording.
→ The RECORD flag starts flashing.
7 Press ■ to stop recording.

Notes:
1. Only ⇆ or ⊐ mode is available during recording.
2. For CD Synchro-start recording see Compact Disc section.
3. During recording, it is not possible to listen to another sound source.

Dubbing cassettes (from TAPE DECK 1 to TAPE DECK 2)

1 Press **TAPE 1-2** to select **tape deck 2** .
2 Load the prerecorded cassette into **tape deck 1** and a blank cassette into **tape deck 2**.
→ Make sure that both cassettes have their full spools to the left.
3 Press SIDE to select the FRONT side of the casette in **tape deck 2**.
4 Press DUBBING and then press ◀◀ or ▶▶ for respective dubbing speed mode.
→ NORMAL (normal speed) or FAST (high speed) appears on the display.
5 Press DUBBING again to start recording.
→ The RECORD flag starts flashing.
→ HSD appears on the display for high speed dubbing.
6 Press ■ to stop dubbing.

Notes:
- At the end of side A, flip the cassettes to side B and repeat the procedure.
- Dubbing of cassettes is only possible in the TAPE DECK 2. To ensure good dubbing, use cassettes of the same length.
- During high speed dubbing in Tape mode, the sound is reduced to a low volume.
- You can switch to other sound source while dubbing.

Dolby B Noise Reduction System

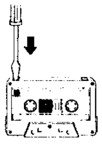
The Dolby B NR System is manufactured under license from Dolby Laboratories Licensing Corporation. The word Dolby and the ◻◻ symbol are trademarks of Dolby Laboratories Licensing Corporation.

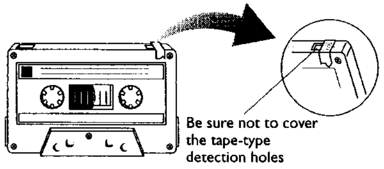
1 Press DOLBY NR to switch on Dolby B NR.
→ The ◻◻ **NR** appears in the display.
2 Press DOLBY NR again to switch off Dolby B NR.
→ The ◻◻ **NR** disappears from the display.

Notes:
- A cassette recorded with the Dolby B NR system should also be played in the Dolby B NR mode. If you forget to operate the DOLBY NR button, the treble may be reproduced too strongly or too faintly.
- Dolby NR button has no influence during dubbing (dubbing from TAPE DECK 1 to TAPE DECK 2). An original cassette recorded with Dolby B NR automatically produces a copy with Dolby B NR.

General Information

- For recording, use only a cassette of IEC type I (normal cassette) or IEC type II (Chrome). The respective cassette type is selected automatically.
- The tape in the cassette is secured at both ends with a leader tape. At the beginning and end of a cassette, nothing will be recorded for six to seven seconds.
- The recording level is set automatically, regardless of the position of VOLUME.
- Check and tighten slack tape with a pencil before use. Slack tape may get jammed or may burst in the mechanism.
- To prevent accidental recording, break out the tab on the left shoulder of the cassette side you want to protect.
- To re-record the cassette, cover each hole with cellophane tape. Do not cover the Chrome tape detection hole when covering the tab opening.



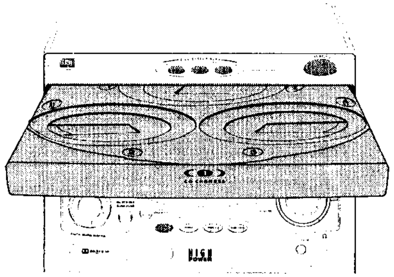

Be sure not to cover the tape-type detection holes

- C-120 tape is extremely thin and may be easily deformed or damaged. It is not recommended for use in this unit.
- Store the cassettes at room temperature and do not put them too close to a magnetic field (for example, transformers, TVs or speakers).

Warning!
1) This set is designed for conventional CDs. Do not use any accessories like disc stabilizer rings or CD treatment sheets, etc., which may damage the CD mechanism.
2) Do not load more than one disc into each tray.
3) When the CD changer is loaded with CD(s), do not turn over or shake the unit as this may jam the changer mechanism.

You can load up to three discs in the CD changer for continuous play without interruption. In addition to the conventional 12-cm disc, 8-cm discs can also be used without an adaptor.

Loading the CD Changer



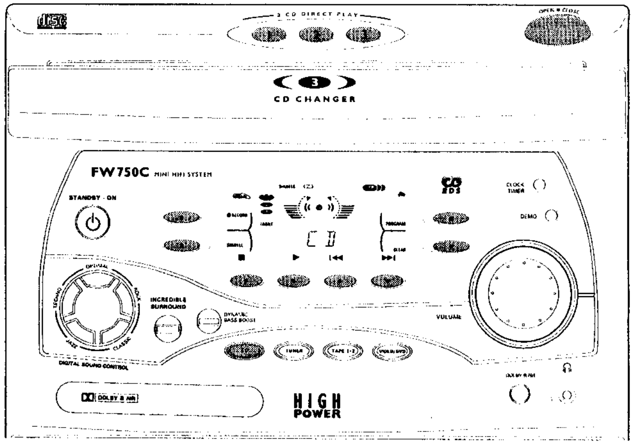
1. Press **CD** on the unit or on the remote control to select CD mode.
2. Press **OPEN•CLOSE**.
   → The CD compartment slides out.
3. Load a CD with the ***printed side up*** in the right tray.
   - You can load another disc in the left tray.
   - To load the third disc, press the corresponding **3 CD DIRECT PLAY** button of the empty tray.
     → The CD changer carousel will rotate until the empty tray is at the right hand side and is ready for loading.
     → Playback will always start with the outer right disc tray.
4. Press **OPEN•CLOSE** to close the CD compartment.
   → The total number of tracks and playing time of the last selected disc appear on the display.

The following display indications will help you to know whether the disc trays are empty or loaded.

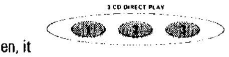
○ 1 – indicates that disc tray 1 is empty.

● 2 – indicates that disc tray 2 is loaded with a disc.

● 3 – indicates that disc tray 3 is loaded and selected.



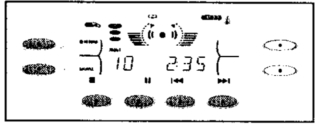
3 CD Direct Play button



- When the button is green, it indicates that there is no disc loaded in the disc tray.
- When the button is red, it indicates that there is a disc loaded in the disc tray.

Playing a CD

1. Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
   → The disc tray, track number and elapsed playing time of the current track appear on the display.



- To interrupt play, press ❚❚ (or **PAUSE** ❚❚ on the remote control).
  → The playing time flashes.
- To resume play, press ▶ again (or **PLAY** ▶ on the remote control).

2. To stop play, press ■ (or **STOP** ■ on the remote control).

Note:
All the available discs will play once, then stop. When the CD has stopped playing, the set will switch to the standby mode after 15 minutes if no button is pressed.

When the CD tray is closed, you can play a CD directly by pressing the **3 CD DIRECT PLAY (1 - 3)** buttons on the set (or **DISC UP** button on the remote control). The CD player will stop at the end of playback of the selected disc.

3 CD DIRECT PLAY
1
2
3

Selecting a desired track

Selecting a desired track at the stop mode
1. Press ⏮ or ⏭ (**PREV** ⏮ **/ NEXT** ⏭ on the remote control) until the desired track appears on the display.
2. Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
   → The selected track number and elapsed playing time appear on the display.

Selecting a desired track during play mode
1. Press ⏮ or ⏭ (**PREV** ⏮ or **NEXT** ⏭ on the remote control) until the desired track appears on the display.
   → The selected track number and elapsed playing time appear on the display.
- If you press ⏮ once it will skip to the beginning of the current track and play the track again.

Searching for a particular passage during play mode

- Press and hold ⏮ or ⏭ (◀◀ or ▶▶ on the remote control) until the desired passage is located.
  → After 5 seconds, it will go into high speed search and the volume is reduced.
- Play returns to normal when ⏮ or ⏭ is released.

Shuffle

SHUFFLE – playing all the available discs and their tracks in random order. It can also be used when tracks are programmed.

To shuffle all the discs and tracks

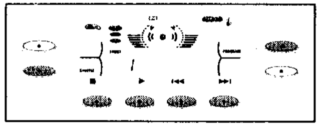
1 Press SHUFFLE (or **SHUFFLE** on the remote control).
  → "SHUFFLE" flashes briefly on the display.
  → The SHUFFLE flag, the disc and the track selected at random appear on the display.
- The discs and the tracks will now be played in random order until you press ■.

2 Press SHUFFLE again to resume normal playback.
  → The SHUFFLE flag disappears from the display.

Programming Tracks

Programming tracks of a loaded CD is possible in the stop mode of the CD. The display will indicate the total tracks stored in the program. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "PROGRAM FULL".

1 Load the desired discs in the disc trays.
2 Press PROGRAM to start programming.
  → The PROGRAM flag flashes on the display.



3 Press the desired disc button to select the disc.
4 Press ⏮ or ⏭ to select the desired track.
5 Press PROGRAM to store the track.
- Repeat steps **3** to **5** to store other discs and tracks.

6 Press ■ once to end programming mode.
  → The total number of tracks programmed and total playing time appear on the display.

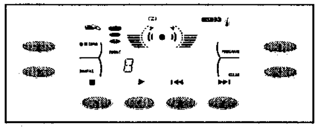
Note:
If the total playing time is more than "99:59" or one of the programmed tracks has a number greater than 30, then "--:--" is displayed instead of the total playing time.

Playing the program

1 Press ▶ (or **PLAY** ▶ on the remote control) to start program playback.
  → "PROGRAM PLAY" appears on the display.
  → The track number and elapsed playing time of the current track will appear on the display.
2 Press ■ (or **STOP** ■ on the remote control) to stop program playback.

Note:
If you press any of the 3 CD DIRECT PLAY buttons, the set will play the selected disc or track and the stored program will be ignored temporary. The PROGRAM flag will also temporarily disappear from the display and then reappear when the playback for the selected disc ends.

Reviewing the program



Reviewing of the program is only possible in the stop mode.
- Press ⏮ or ⏭ repeatedly to review the programmed tracks.
- Press ■ to exit review mode.

Erasing the program (in the stop position)
- Press CLEAR on the set.
  → "PROGRAM CLEARED" appears on the display.

Note:
The program is also erased when the set is disconnected from the power supply. If the CD carousel is opened, the tracks belonging to the outer two trays will be erased and "CLEARED" will scroll on the display once.

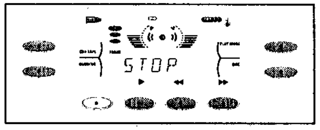
● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP** ■ on the remote control).

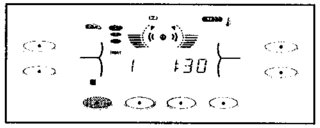
CD Synchro Start Audio Recording

During CD synchro start audio recording,
- It is not advisable to fast forward/rewind your cassette in TAPE DECK 1.
- It is not possible to listen to another sound source.

1 Press **CD** on the unit or on the remote control to select CD mode.
2 Load a disc into the disc tray.
3 You can program the tracks in the order you want them to be recorded (see Programming Tracks). If not, the tracks are recorded according to the selected disc.
4 Press **TAPE 1-2** (or **TAPE 2** on the remote control) to select **tape deck 2**.

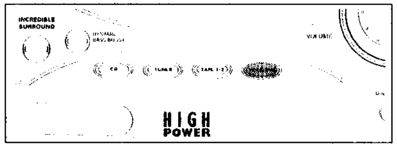


5 Load a blank cassette (full spool to the left) into **tape deck 2**.
6 Press SIDE to select the FRONT side of the cassette.
  → The FRONT flag appears in the display.
7 Press PLAY MODE to select the play mode (⊐ or ⊃) for **tape deck 2**.
8 Press CD ▶ TAPE to start recording.
  → The RECORD flag flashes on the display.
  → The CD starts playing after a seven-second delay to prevent recording on the leader tape at the beginning of the cassette.



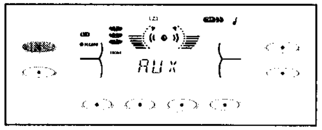
9 Press ■ to stop recording.

Selecting External Connection



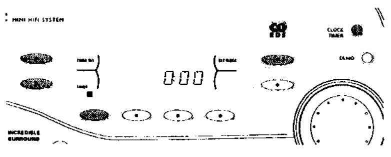
If you have connected the audio out of the external equipment (TV, VCR, Laser Disc player or DVD) to the AUX IN sockets, you can hear the enhanced sound from the system.

- Press **VIDEO/DVD** on the unit (or **AUX** on the remote control) to select external mode.
  → AUX appears on the display.
  The available display button functions light up:



● Record Tape

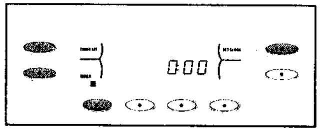
1 As soon as you press ● RECORD, the current sound will be recorded on TAPE DECK 2, provided a cassette suitable for recording is loaded.
2 To stop recording, press ■ (or **STOP** ■ on the remote control).



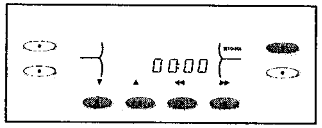
Setting the clock

The clock is in 24-hour mode, e.g. 00:00 or 23:59.

1 Press **CLOCK•TIMER**.
→ "0:00" starts flashing.



2 Press SET CLOCK.
→ "00:00" starts flashing



3 Set the hour with ▼ or ▲.
4 Set the minute with ◀◀ or ▶▶.
5 Press SET CLOCK again to store the setting.
→ The clock starts running.

Notes:

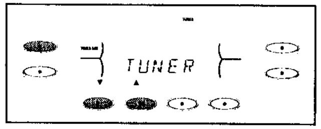
- When a power interruption occurs, the clock settings are erased.
- To set the time with RDS clock, see "RECEIVING RDS RADIO STATION" under TUNER section.

Setting the Timer

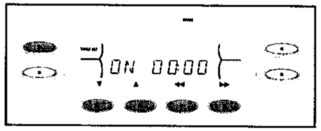
- The system can switch on to CD, TUNER or TAPE 1 mode automatically at a preset time. It can serve as an alarm to wake you up. After half an hour from the preset time, the system will return to the standby mode if no button is pressed.
- Before setting the timer, make sure the clock is set correctly.
- The timer works only once for each setting.
- **The volume of the timer will be at the last setting before the set is switched to standby mode.**

Timer Setting

1 Press **CLOCK•TIMER**.
2 Press TIMER SET.
→ The TIMER flag flashes.



3 Press ▼ or ▲ to select the desired source.
→ The display will switch as follows:
TUNER → TAPE 1 → CD → TUNER ...
4 Press TIMER SET to confirm your selection.
→ The display will show "ON 00:00" and "00:00" flashes.



5 Press ▼ or ▲ to set the hour for the timer to start.
6 Press ◀◀ or ▶▶ to set the minutes for the timer to start.
7 Press TIMER SET to store the start time.
→ The TIMER is now set.
→ The TIMER flag remains lit.

To stop the TIMER

1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
→ The TIMER is now off.

To start the TIMER again

1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
→ The display will show the last set start time of the TIMER and its flag.
→ The TIMER flag remains lit.

Notes:

1. If the source selected is TUNER, the last tuned frequency will be switched on.
2. If the source selected is CD, the first track of the last selected disc will be played. If the CD trays are empty, the TUNER source will be selected instead.
3. If the source selected is TAPE 1, when the preset time is reached during high speed dubbing, the TUNER source will be selected instead.

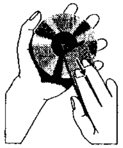
Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasive.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.

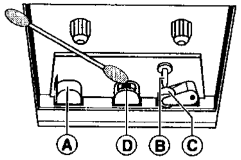


- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analog records.

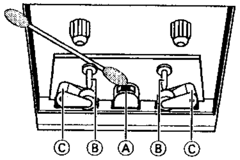
Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads Ⓐ and Ⓓ, the capstan(s) Ⓑ, and pressure roller(s) Ⓒ after every 50 hours of tape operation.

Tape Deck 1



Tape Deck 2



- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You can also clean the head by playing a cleaning tape through once.

Demagnetizing the heads

- Use a demagnetizing cassette available at your dealer.

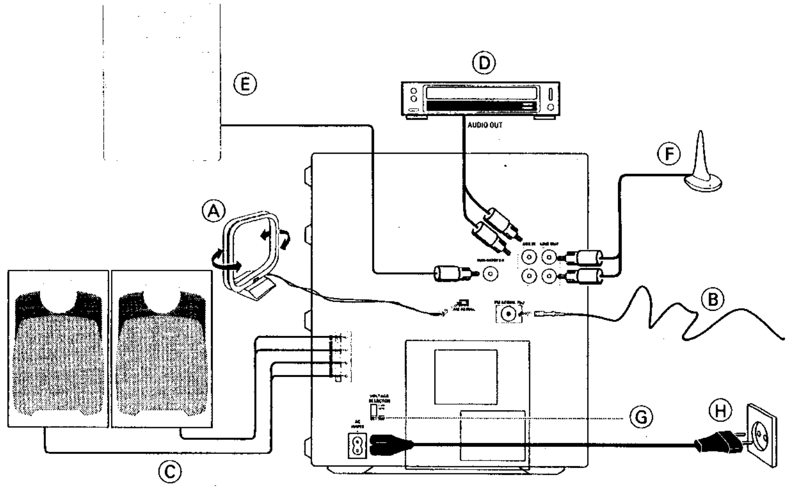
Troubleshooting Guide

Warning! Under no circumstances should you try to repair the set yourself, as this will invalidate the warranty.

- If a fault occurs, check the points listed below before taking the set for repair.
- Should any problems persist after you have made these checks, consult your nearest dealer or service center.

SYMPTOM	POSSIBLE CAUSE	REMEDY
RADIO RECEPTION		
The STEREO indicator flashes.	The signal is too weak.	Adjust the antenna.
Cannot tune to station	Wrong tuning grid.	Switch to the correct tuning grid.
Severe hum or noise.	The signal strength is too weak.	Adjust the antenna.
	The TV or VCR is too close to the stereo system.	Separate the stereo system from the TV or VCR.
		Connect an external antenna for better reception.
"NO RDS" is displayed.	Station is not transmitting RDS.	Select another RDS station.
"NO RDS TEXT" is displayed.	RDS text message is not available.	Select another RDS station.
CASSETTE DECK OPERATION		
"CANNOT RECORD" is displayed.	No cassette in the cassette deck.	Insert a blank cassette into the cassette deck.
	The protection tab has been broken.	Put a piece of clear adhesive tape over the opening.
"RECORDING ACTIVE" is displayed.	A recording is active	Stop the recording or wait until it is finished.
Recording or playback cannot be made or there is a decrease in audio level.	Dirty tape heads.	See section on cassette deck maintenance.
	Magnetic build-up in the record/playback head.	Use demagnetizing cassette.
Excessive wow or flutter, or sound drop-out.	Contamination of the capstans or pressure rollers.	See section on cassette deck maintenance.
CD PLAYER OPERATION		
"NO DISC" is displayed.	The disc is inserted upside down.	Place CD with printed side up.
	Moisture condensation.	Wait until lens has adjusted to normal room temperature.
	There is no disc in the CD tray.	Insert a CD.
	The CD is dirty, badly scratched or warped.	Replace or clean the CD.
GENERAL		
Set not working.	Set does not react when buttons are pressed.	Press STANDBY-ON to switch the unit off, then switch it on again. Or, unplug the AC power plug from the wall outlet, then plug it in again.
No or poor sound.	Volume is not turned up.	Adjust VOLUME.
	The headphones are connected.	Disconnect the headphones.
	Speakers are not connected or are connected wrongly.	Check that the speakers are connected correctly. Make sure that the stripped speaker wire is clamped.
Reversed left and right sound.	Speakers are connected wrongly.	Check the speaker connections and speaker location.
Lack of bass sound or apparently imprecise physical location of musical instruments.	Speakers are connected wrongly.	Check the speaker connection for proper phasing, red/black wires to red/black terminals.
Clock blinking.	There was a power disruption.	Reset the clock.
Remote control has no effect on the set.	The distance to the system is too large.	Reduce the distance.
	Batteries are inserted incorrectly.	Insert the batteries correctly.
	Batteries are exhausted.	Replace the batteries.
	Wrong sound source is selected.	Select the sound source before pressing the function button. (PLAY, PREV/NEXT, etc.).
Timer not working.	Timer not on.	Press CLOCK•TIMER on the set to switch on the timer.
	Dubbing/recording is active.	Stop dubbing/recording.
"PRESS DEMO TO EXIT" is displayed.	Demo mode is switched on.	Press STANDBY-ON or DEMO to switch off the demo.
Hydraulic Volume Control knob not protruding or retracting	Volume knob is locked.	Press DBB on set or remote control for more than 3 seconds to unlock volume knob.

Rear Connection



Ⓖ Adjusting the Operating Voltage

(for specific versions only)

Before connecting the AC power cord to a wall outlet, make sure that the voltage selector at the rear of the system is set to the local power line voltage. If not, reset the selector before connecting to the wall outlet.

Changing the FM/MW tuning grid

(for specific versions only)

The frequency step can be changed if necessary. In North and South America, the frequency step between adjacent channels in the FM/MW band is 100 kHz/10 kHz. In other parts of the world, it is 50 kHz/9 kHz. The frequency step presetted in the factory is 9 KHz.

For FM Band : change from 50 kHz to 100 kHz or vice versa
For MW Band : change from 9 kHz to 10 kHz or vice versa

Changing of tuning grid will erase all previously stored preset stations.

While in TUNER mode, press the **TUNER** button for ***more than 5 seconds***. Display will shows "GRID 10" or "GRID 9".

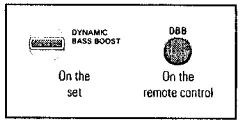
Note:
GRID 9 indicates that the tuning grid is in step of 50 kHz in FM band and 9 kHz in MW band. GRID 10 indicates that the tuning grid is in step of 100 kHz in FM band and 10 kHz in MW band.

Hydraulic Volume Control

This system incorporates the latest feature of an interactive volume control. There is a special sensor that detects any object that comes within 30 cm from the system.

- When object is detected
  → The volume knob will protrude automatically.
  → The message "TOUCH ME" will scroll across the display.
- When object is not detected, after 10 seconds
  → The volume knob retracts.
  → The message "GOODBYE" is displayed.

Note:
During normal operation, the message will not be displayed. Only the volume knob will protrude or retract automatically.



To lock the volume knob (only in active mode)

- Press the **DBB** button on the set or remote control for more than 3 seconds.
  → The volume knob is locked and the message "VOLUME KNOB LOCKED" will scroll across the display.
  → The volume knob position will be at the last setting.
  → When the volume knob is locked, the sensor will be inactive.

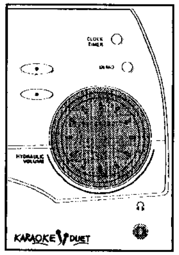
To unlock the volume knob

- Press the **DBB** button on the set or remote control for more than 3 seconds.
  → The volume knob is unlocked and the message "VOLUME KNOB UNLOCKED" will scroll across the display.

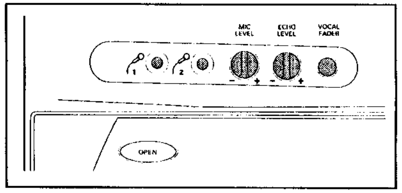
Volume Adjustment

Rotate **VOLUME** right or left (or press **VOLUME** + or − on the remote control) to increase or decrease the sound level.

For Personal Listening
Connect the headphones jack to the 🎧 socket at the front of the set. The speakers will be muted.



Karaoke *(for specific versions only)*



VOCAL FADER *(for specific versions only)*
– to fade out the vocal level for karaoke or microphone recording.

ECHO LEVEL *(for specific versions only)*
– to adjust the echo level for karaoke or microphone recording.

MIC LEVEL *(for specific versions only)*
– to adjust the mixing level for karaoke or microphone recording.

MIC 1 and 2 *(for specific versions only)*
– to connect microphones jack.

Microphone mixing

1. Set the **MIC LEVEL** control to the minimum level to prevent acoustic feedback (e.g. a loud howling sound) before you connect the microphone.
2. Connect either 1 or 2 microphones to the mic socket.
3. Press **CD**, **TUNER**, **TAPE 1-2** or **VIDEO/DVD**.
4. Play the selected source.
5. Adjust the volume with **VOLUME** control.
6. Adjust the **MIC LEVEL** control to the mixing level that you want.
7. Adjust the **ECHO LEVEL** control to the echo level that you want.
8. Press **VOCAL FADER** to suppress the vocals on special recorded Karaoke CDs.
   → When the VOCAL FADER is switched on, the 🎤 appears on the display.
9. Start singing or talking through the microphone.

Recording the mixed sound

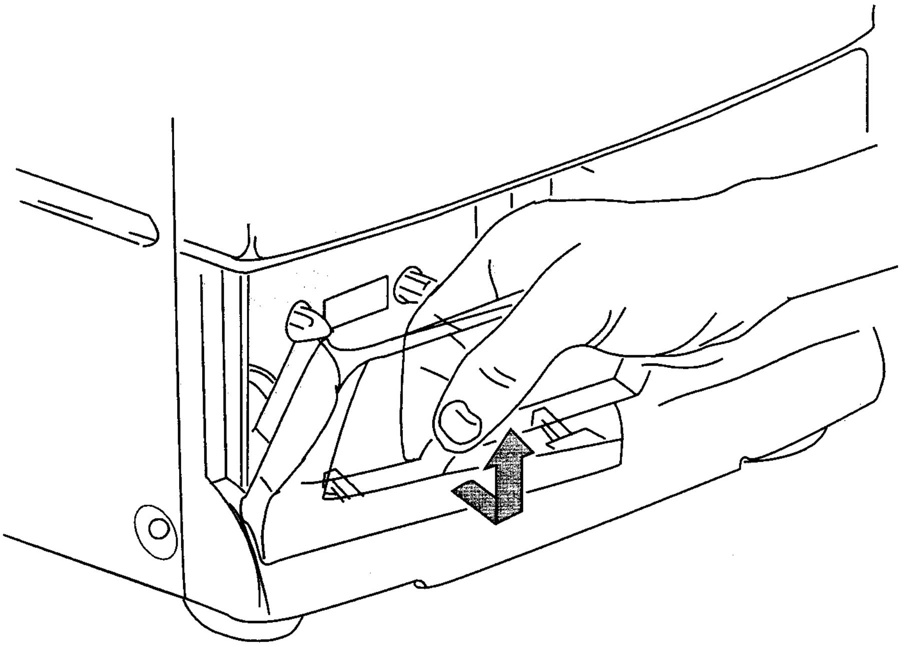
During microphone mixing, you can record the mixed sound on a cassette in TAPE DECK 2.

1. Load a blank cassette in **tape deck 2**.
2. Press ● RECORD.

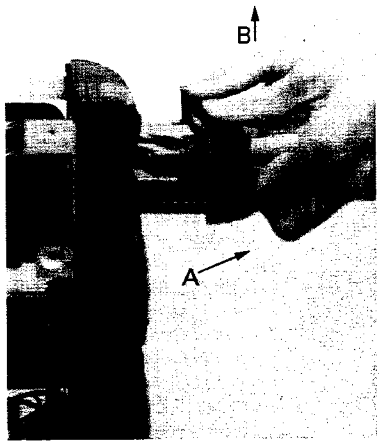
Notes:
1. For maximum VOCAL FADER effect, you are advised to switch off the Incredible Surround.
2. If you do not intend to record via the microphone, unplug the microphone to avoid accidental mixing with other recording source.

DISMANTLING INSTRUCTIONS

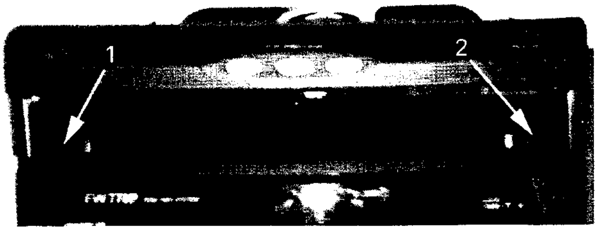
Dismantling of the Cassette Cover



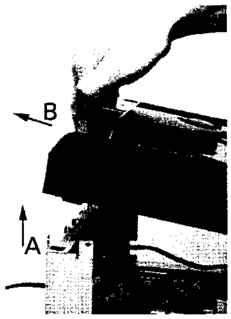
Dismantling of the Front Panel



1) Remove the top cover
2) Loosen 3 screws on the bottom
3) Slide the CD tray out
4 Remove the CD cover as indicated

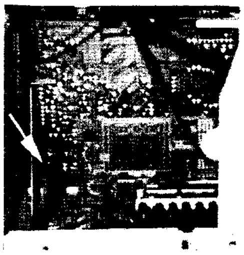


5) Loosen 2 screws at the front

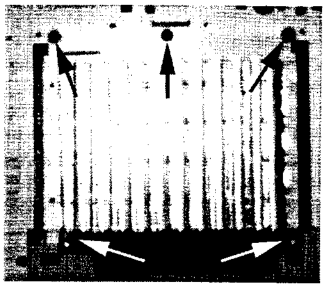


6) Loosen 2 screws at the rear
7) Lift the CDC Module up and remove as indicated

Dismantling of Power Module

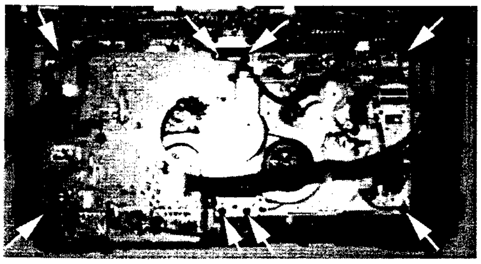


1) Remove 1 screw on the Power supply board



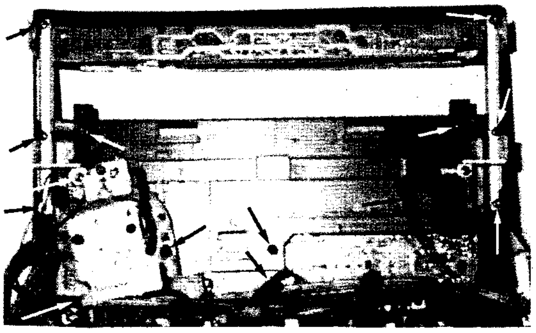
2) Remove the Ruck sack (2 screws)
3) Remove 5 screws for the for the power module as indicated and pull out the Power module

Dismantling of Tape Deck Module



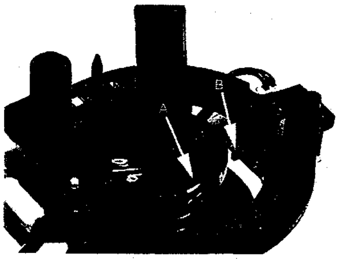
1) Remove 8 screws as indicated

Dismantling of Front Board & HVC Unit



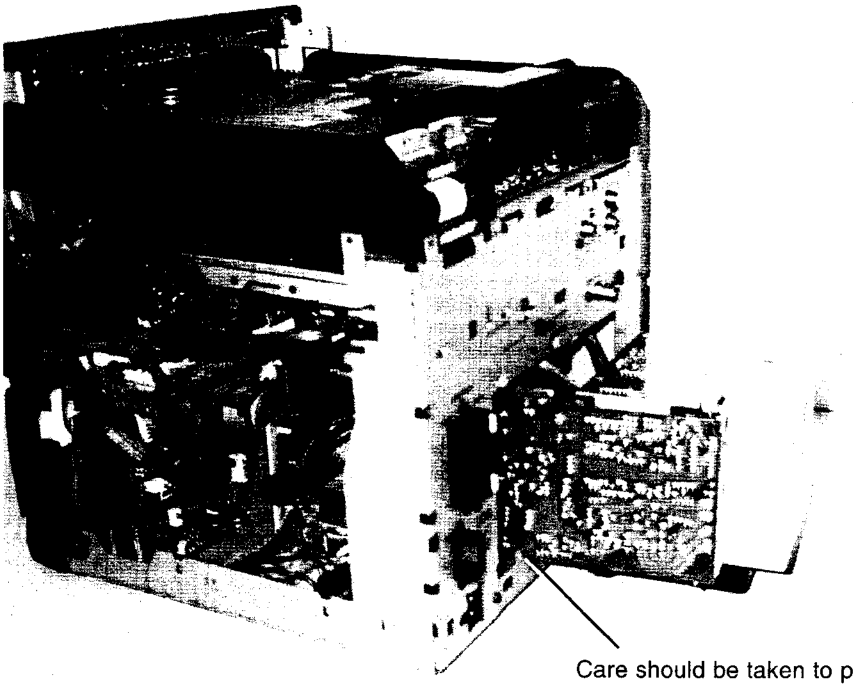
1) With the power on approached the Hydralic Volume knob and pull it off when the know is in the fully-out position
2) Remove 3 screws and take out the HVC Unit
3) Lift up the DPL board mounting metal lever, pos 289
3) Remove the left and right bracket, pos 260 & 261 by 8 screws
4) Remove the Front bracket, pos 247 by 5 screws

Hints for HVC Unit



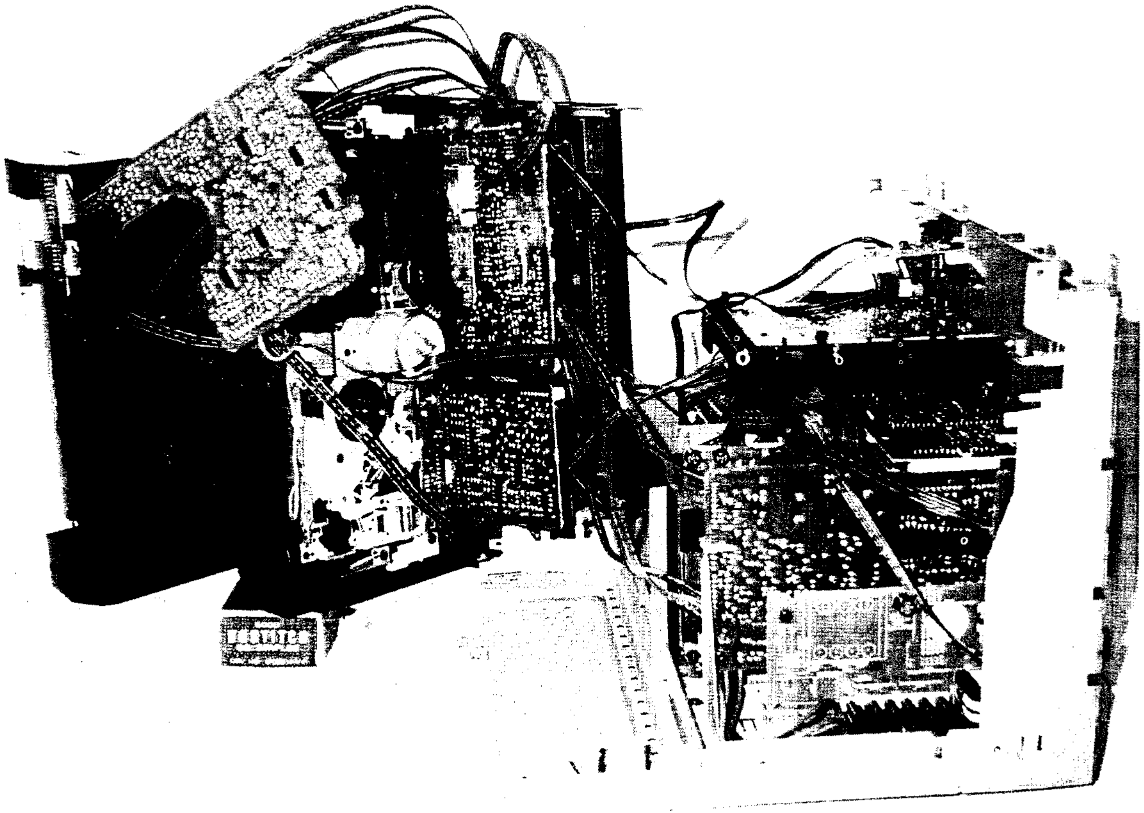
1) During re-assembly of the HVC Unit care should be taken concerning:
   a) Alignment of pos 3 and 7 as indicated as A in above (see also Chapter 14 HVC exploded view)
   b) During assembly of pos 3, do not damage switch lever B as indicated above.

Service pos A

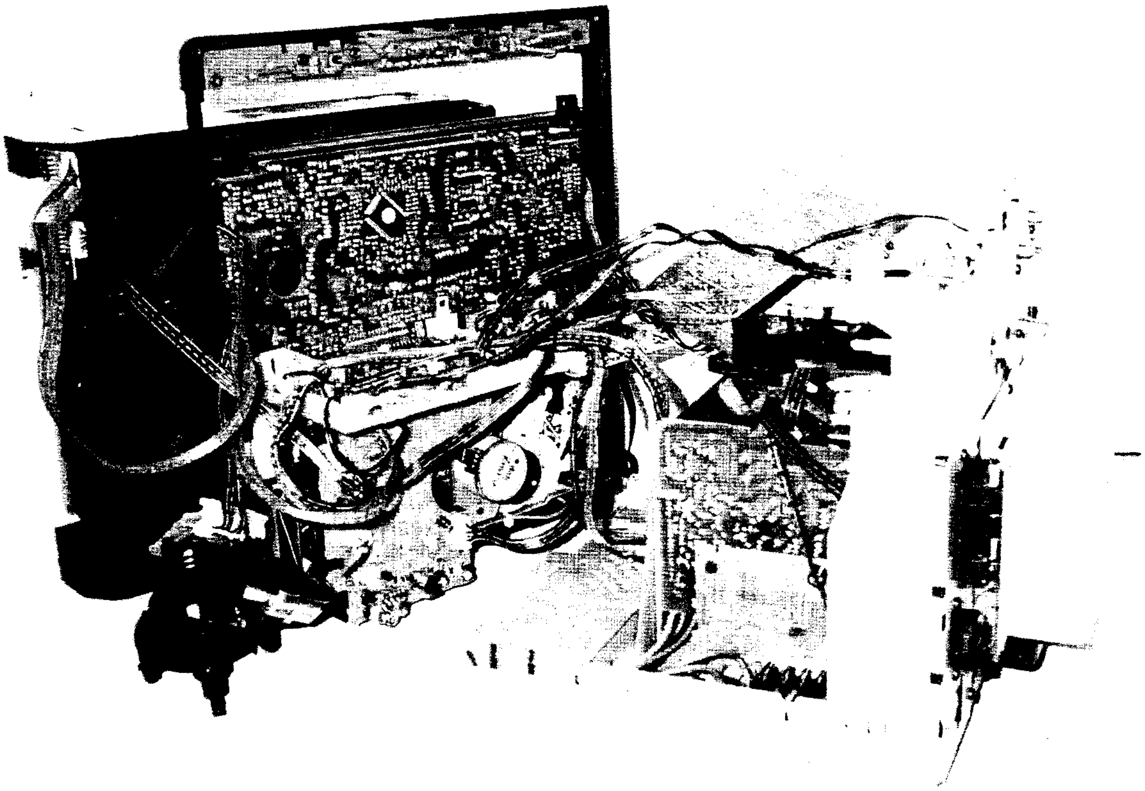


Care should be taken to prevent the copper pattern from short-circuiting to the Rear panel

Service pos B

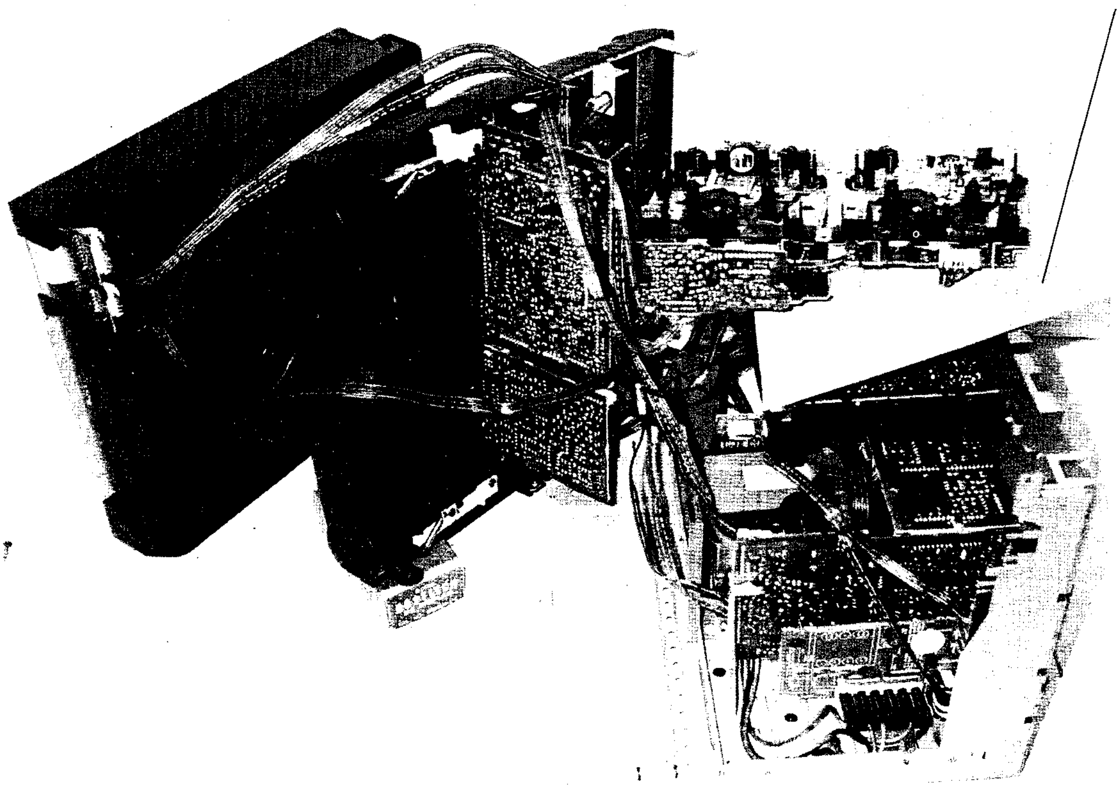


Service pos C



Service pos D

Use a plastic sheet or hard paper to prevent the Tade Mechanism from being damaged by the Rear panel



CD Error code	Error Description
E1002	Focus Error Triggered when the focus could not be found within a certain time when starting up the CD or when the focus is lost for a certain time during play.
E1007	Subcode Error (no subcode within time) Triggered when a new subcode was missing for a certain time during play.
E1008	TOC error, out of lead-in area when reading TOC Triggered when during reading the TOC the lead-in (track no. 0) is left. This can be caused by a misaligned inner-switch or by a disc with a mispositioned lead-in.
E1010	Radial Error Triggered when the radial servo is not on track for a certain time during play.
E1011	Sledge Error Generated when the inner-switch did not open within a certain time when the pick-up is moved from the inner position. Inner-switch or sledge motor problem.
E1012	Fatal Sledge Error Generated when the inner-switch did not close within a certain time when the pick-up is moved inside. Inner-switch or sledge motor problem.
E1013	Turntable Motor Error Generated when the CD did not reached 75% of speed during startup within a certain time. Discmotor problem.
E1014	Jump-offtrack error (too less grooves within time) Triggered in normal play when the jump destination could not be found within a certain time.
E1020	PLL Error The Phase Lock Loop could not lock within a certain time.
E1070	Carousel CDM-position switch not open within time.
E1071	Carousel position not reached within time.
E1072	Error tray open
E1076	Error disc change
E1077	Error pickup switch close
E1078	Error pickup switch open
E1079	Error tray block

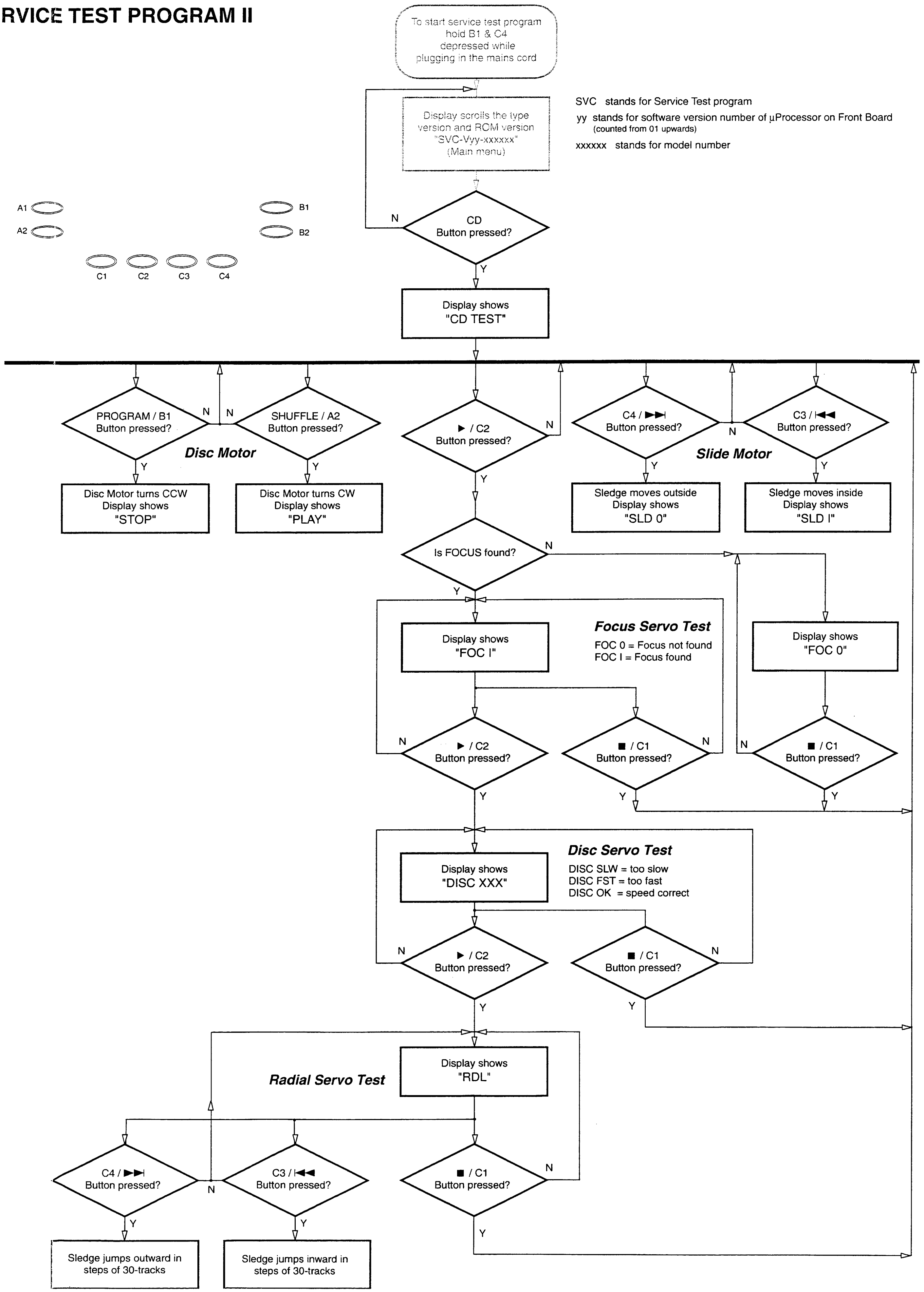
Table 2

Keys activated	Display shows	Keys activated	Display shows	Keys activated	Display shows
Disc 1	01	Incredible Surround	21	Clock/Timer	14
Disc 2	02	Dynamic Bass Boost	22	Demo	15
Disc 3	03	A1	06	CD	23
Open/Close	04	A2	07	Tuner	24
Standby-On	05	C1	08	Tape 1 - 2	25
Optimal	19	C2	09	Aux / Video - DVD	26
Rock	17	C3	10	Dolby Pro-Logic	27
Classic	16	C4	11	Dolby	28
Jazz	18	B1	12		
POP	20	B2	13	Any Remote control button	RC

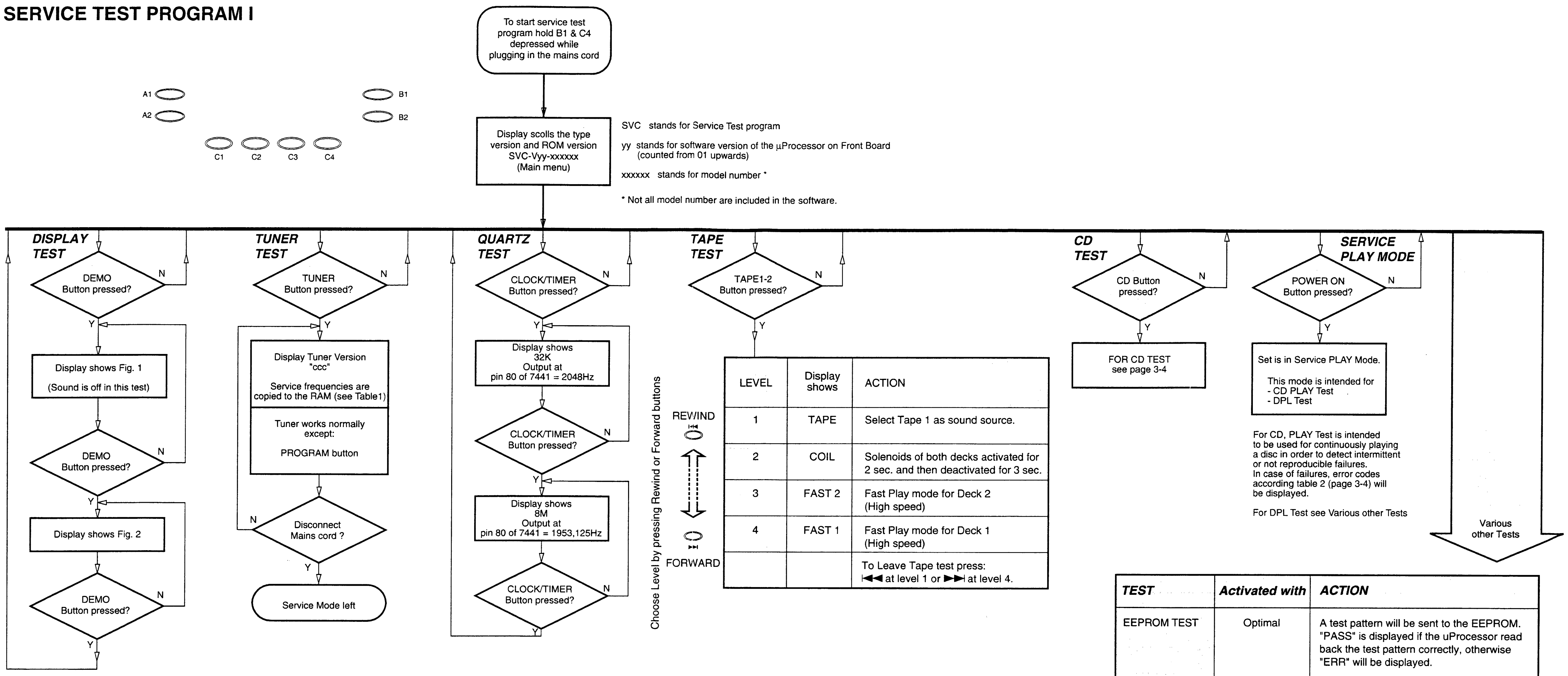
Table 3

SERVICE TEST PROGRAM II

SVC stands for Service Test program
yy stands for software version number of µProcessor on Front Board (counted from 01 upwards)
xxxxxx stands for model number


To start service test program hold B1 & C4 depressed while plugging in the mains cord
Display scrolls the type version and RCM version "SVC-Vyy-xxxxxx" (Main menu)
A1
A2
B1
B2
C1
C2
C3
C4
CD Button pressed?
N
Y
Display shows "CD TEST"
PROGRAM / B1 Button pressed?
SHUFFLE / A2 Button pressed?
Disc Motor
Disc Motor turns CCW Display shows "STOP"
Disc Motor turns CW Display shows "PLAY"
► / C2 Button pressed?
C4 / ►►I Button pressed?
C3 / I◄◄ Button pressed?
Slide Motor
Sledge moves outside Display shows "SLD 0"
Sledge moves inside Display shows "SLD I"
Is FOCUS found?
Focus Servo Test
FOC 0 = Focus not found
FOC I = Focus found
Display shows "FOC I"
Display shows "FOC 0"
■ / C1 Button pressed?
Disc Servo Test
DISC SLW = too slow
DISC FST = too fast
DISC OK = speed correct
Display shows "DISC XXX"
Radial Servo Test
Display shows "RDL"
Sledge jumps outward in steps of 30-tracks
Sledge jumps inward in steps of 30-tracks

SERVICE TEST PROGRAM I


A1
A2
B1
B2
C1
C2
C3
C4
To start service test program hold B1 & C4 depressed while plugging in the mains cord
Display scolls the type version and ROM version SVC-Vyy-xxxxxx (Main menu)
DISPLAY TEST
DEMO Button pressed?
N
Y
Display shows Fig. 1
(Sound is off in this test)
DEMO Button pressed?
Display shows Fig. 2
DEMO Button pressed?
TUNER TEST
TUNER Button pressed?
Display Tuner Version "ccc"
Service frequencies are copied to the RAM (see Table1)
Tuner works normally except:
PROGRAM button
Disconnect Mains cord ?
Service Mode left
QUARTZ TEST
CLOCK/TIMER Button pressed?
Display shows 32K Output at pin 80 of 7441 = 2048Hz
CLOCK/TIMER Button pressed?
Display shows 8M Output at pin 80 of 7441 = 1953,125Hz
CLOCK/TIMER Button pressed?
TAPE TEST
TAPE1-2 Button pressed?
Choose Level by pressing Rewind or Forward buttons
REWIND
FORWARD
CD TEST
CD Button pressed?
FOR CD TEST see page 3-4
SERVICE PLAY MODE
POWER ON Button pressed?
Set is in Service PLAY Mode.
This mode is intended for
- CD PLAY Test
- DPL Test
Various other Tests

SVC stands for Service Test program

yy stands for software version of the µProcessor on Front Board (counted from 01 upwards)

xxxxxx stands for model number *

* Not all model number are included in the software.

LEVEL	Display shows	ACTION
1	TAPE	Select Tape 1 as sound source.
2	COIL	Solenoids of both decks activated for 2 sec. and then deactivated for 3 sec.
3	FAST 2	Fast Play mode for Deck 2 (High speed)
4	FAST 1	Fast Play mode for Deck 1 (High speed)
		To Leave Tape test press: ⏮ at level 1 or ⏭ at level 4.

For CD, PLAY Test is intended to be used for continuously playing a disc in order to detect intermittent or not reproducible failures. In case of failures, error codes according table 2 (page 3-4) will be displayed.

For DPL Test see Various other Tests

PRESET	Europe "EUR"	East Europe "EAS"	USA "USA"	Oversea "OSE"	Korea "KOR"	Japan "JAP"	East Eur. 2-band "EAS"
1	87.5MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz	76MHz	65.81MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz	CH3 107.75MHz	108MHz
3	531kHz	74MHz	530kHz	531/530kHz	531kHz	90MHz	74MHz
4	1602kHz	87.5MHz	1700kHz	1602/1700kHz	1602kHz	CH1 95.75MHz	87.5MHz
5	558kHz	531kHz	560kHz	558/560kHz	558kHz	CH2 101.75MHz	531kHz
6	1494kHz	1602kHz	1500kHz	1494/1500kHz	1494kHz	531kHz	1602kHz
7	153kHz	558kHz	98MHz	87.5/98MHz	87.5MHz	1602kHz	558kHz
8	279kHz	1494kHz	87.5MHz	87.5MHz	87.5MHz	558kHz	1494kHz
9	198kHz	153kHz	87.5MHz	87.5MHz	87.5MHz	1494kHz	98MHz
10	98MHz	279kHz	87.5MHz	87.5MHz	98MHz	80MHz	70.01MHz
11	87.5MHz	198kHz	87.5MHz	98/87.5MHz	98MHz	76MHz	65.81MHz

Table 1

East Europe TUNER IF offset correction

1) Input a reference frequency 87.5MHz from the generator.

2) Proceed to the Tuner Test Mode (Press PROGRAM button)

3) The set will self-calibrate automatically and display "OFS-xx" when calibration is successful, otherwise it will display "00E".

xx : offset value between -3 to +3

Note: This has to be done whenever the Eeprom, Microprocessor or the components in the oscillator circuitry are replaced.

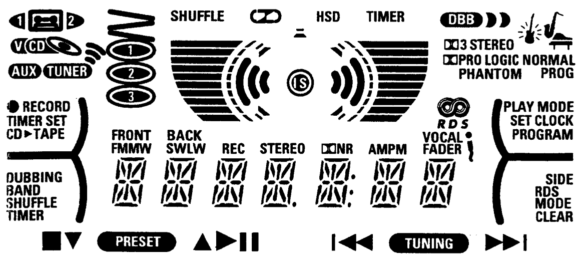

CD
AUX
TUNER
SHUFFLE
HSD
TIMER
DBB
STEREO
PRO LOGIC NORMAL
PHANTOM PROG
RECORD
TIMER SET
CD▸TAPE
FRONT
BACK
FMMW
SWLW
REC
STEREO
NR
AMPM
RDS
VOCAL
FADER
PLAY MODE
SET CLOCK
PROGRAM
DUBBING
BAND
SHUFFLE
TIMER
SIDE
RDS
MODE
CLEAR
PRESET
TUNING

Figure 1

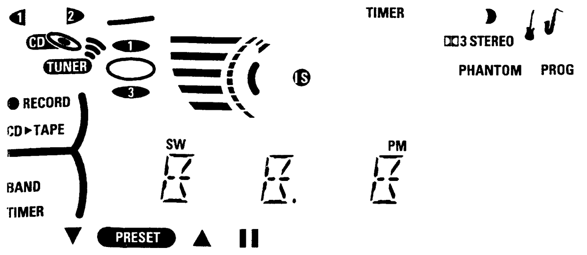
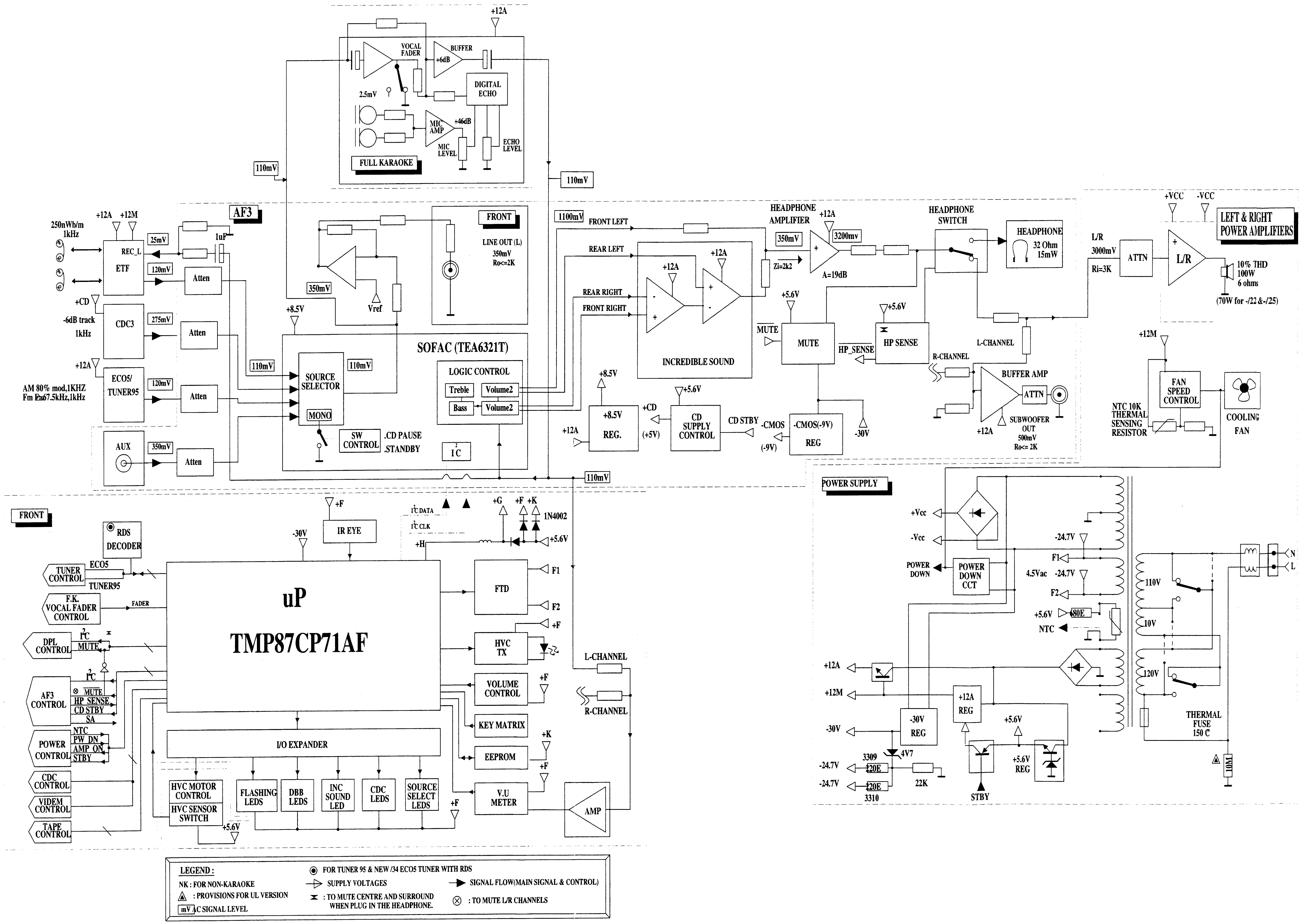

CD
TUNER
TIMER
STEREO
PHANTOM
PROG
RECORD
CD▸TAPE
SW
PM
BAND
TIMER
PRESET

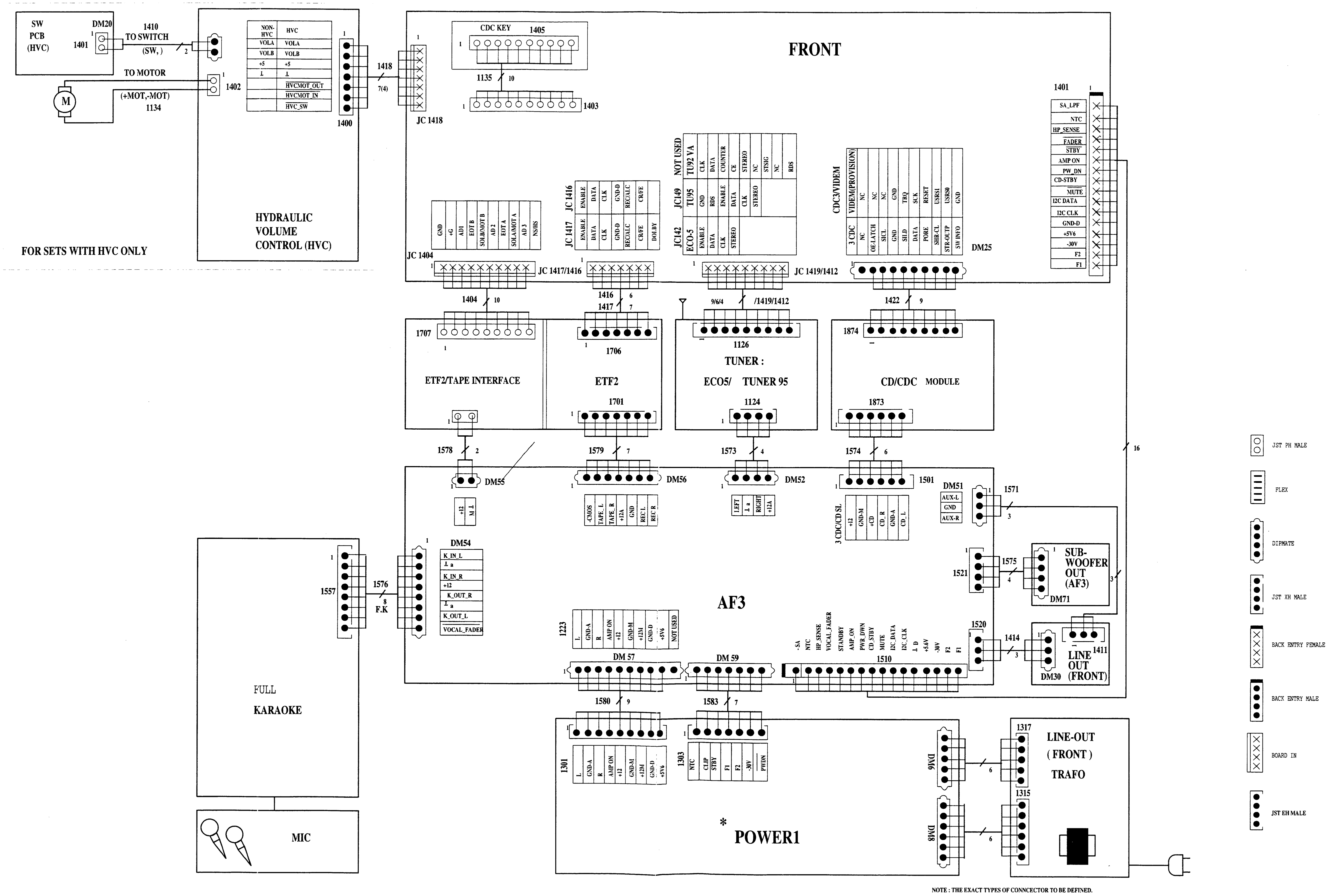
Figure 2

TEST	Activated with	ACTION
EEPROM TEST	Optimal	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERR" will be displayed.
EEPROM FORMAT	Classic	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost!!***
KEY TEST	Aux / Video-DVD	Key numbers according table 3 are shown on the display. (see Chapter 3-4)
FAST CLOCK TEST	Dynamic Bass Boost (DBB)	The clock is switched to fast mode. "FAST" is displayed for 2 sec. Press DBB again to reset the clock to normal. "NORMAL" displayed for 2 sec.
DETECTION TEST	C1	This test is intended to check on the sensor near to the Volume knob. Display shows "OBJ nn" nn < 185 = no object detected nn > 185 = object detected
HVC TEST	B2	This test is intended to check on the hydralic movement of the Volume knob. level 1: Knob moves out & DBB Led turns on. level 2: Knob moves in & DBB Led turns off. level 3: Exit test, ● Record & ■ flag turns on.
DPL TEST	Dolby Pro-logic	The set enters into Pro-logic install mode. The noise-source switches between Left, Center, Right and Rear speakers. Pro-logic settings cannot be install in this test.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

SET BLOCK DIAGRAM


+12A
VOCAL FADER
BUFFER
+6dB
DIGITAL ECHO
2.5mV
MIC AMP
+46dB
MIC LEVEL
ECHO LEVEL
FULL KARAOKE
110mV
110mV
AF3
FRONT
LINE OUT (L)
350mV
Ro<=2K
350mV
Vref
250nWb/m
1kHz
+12A +12M
REC_L
ETF
25mV
120mV
1uF
Atten
+CD
-6dB track
1kHz
CDC3
275mV
Atten
+12A
ECO5/ TUNER95
120mV
AM 80% mod,1KHZ
Fm Fm67.5kHz,1kHz
Atten
AUX
350mV
Atten
+8.5V
110mV
SOURCE SELECTOR
110mV
MONO
SW CONTROL
.CD PAUSE
.STANDBY
I²C
SOFAC (TEA6321T)
LOGIC CONTROL
Treble
Volume2
Bass
Volume2
1100mV
FRONT LEFT
REAR LEFT
REAR RIGHT
FRONT RIGHT
+12A
+12A
INCREDIBLE SOUND
HEADPHONE AMPLIFIER
+12A
350mV
3200mv
Zi=2k2
A=19dB
HEADPHONE SWITCH
HEADPHONE
32 Ohm
15mW
+5.6V
MUTE
MUTE
HP_SENSE
+5.6V
HP SENSE
R-CHANNEL
L-CHANNEL
BUFFER AMP
ATTN
SUBWOOFER OUT
500mV
Ro<= 2K
+12A
+8.5V
+8.5V REG.
+12A
+CD
(+5V)
+5.6V
CD SUPPLY CONTROL
CD STBY
-CMOS
(-9V)
-CMOS(-9V) REG
-30V
110mV
+VCC -VCC
LEFT & RIGHT POWER AMPLIFIERS
L/R
3000mV
Ri=3K
ATTN
L/R
10% THD
100W
6 ohms
(70W for -/22 &-/25)
+12M
FAN SPEED CONTROL
COOLING FAN
NTC 10K THERMAL SENSING RESISTOR
FRONT
RDS DECODER
TUNER CONTROL
ECO5
TUNER95
F.K. VOCAL FADER CONTROL
FADER
DPL CONTROL
I²C
MUTE
AF3 CONTROL
I²C
MUTE
HP_SENSE
CD STBY
SA
POWER CONTROL
NTC
PW_DN
AMP_ON
STBY
CDC CONTROL
VIDEM CONTROL
TAPE CONTROL
-30V
+F
IR EYE
uP
TMP87CP71AF
I²C DATA
I²C CLK
+H
+G
+F +K
1N4002
+5.6V
FTD
F1
F2
+F
HVC TX
+F
VOLUME CONTROL
KEY MATRIX
+K
EEPROM
+F
V.U METER
AMP
L-CHANNEL
R-CHANNEL
I/O EXPANDER
HVC MOTOR CONTROL
HVC SENSOR SWITCH
+5.6V
FLASHING LEDS
DBB LEDS
INC SOUND LED
CDC LEDS
SOURCE SELECT LEDS
+F
POWER SUPPLY
+Vcc
-Vcc
POWER DOWN
POWER DOWN CCT
-24.7V
F1
4.5Vac
-24.7V
F2
+5.6V
180E
NTC
110V
10V
120V
N
L
+12A
+12M
+12A REG
-30V
-30V REG
+5.6V
4V7
3309
-24.7V
220E
22K
-24.7V
220E
3310
STBY
+5.6V REG
THERMAL FUSE 150 C
10M
LEGEND :
NK : FOR NON-KARAOKE
: PROVISIONS FOR UL VERSION
mV : AC SIGNAL LEVEL
: FOR TUNER 95 & NEW /34 ECO5 TUNER WITH RDS
SUPPLY VOLTAGES
: TO MUTE CENTRE AND SURROUND WHEN PLUG IN THE HEADPHONE.
SIGNAL FLOW(MAIN SIGNAL & CONTROL)
: TO MUTE L/R CHANNELS

SET WIRING DIAGRAM


SW PCB (HVC)
DM20
1401
1410 TO SWITCH (SW,)
TO MOTOR
(+MOT,-MOT) 1134
M
1402
NON-HVC
HVC
VOLA
VOLB
+5
HVCMOT_OUT
HVCMOT_IN
HVC_SW
1400
1418
7(4)
JC 1418
HYDRAULIC VOLUME CONTROL (HVC)
FOR SETS WITH HVC ONLY
FRONT
CDC KEY 1405
1135 10
1403
JC 1404
JC 1417/1416
JC 1419/1412
JC 1417
JC 1416
JC142 ECO-5
JC149 TU95
NOT USED TU92 VA
CDC3/VIDEM
3 CDC
VIDEM(PROVISION)
DM25
1401
SA_LPF
NTC
HP_SENSE
FADER
STBY
AMP ON
PW_DN
CD-STBY
MUTE
I2C DATA
I2C CLK
GND-D
+5V6
-30V
F2
F1
1404 10
1416 6
1417 7
9/6/4 /1419/1412
1422 9
1707
ETF2/TAPE INTERFACE
1706
ETF2
1701
1126
TUNER : ECO5/ TUNER 95
1124
1874
CD/CDC MODULE
1873
1578 2
1579 7
1573 4
1574 6
16
DM55
DM56
DM52
1501
DM51
AUX-L
GND
AUX-R
1571 3
DM54
K_IN_L
K_IN_R
+12
K_OUT_R
K_OUT_L
VOCAL_FADER
1557
1576 8 F.K
AF3
1521
1575 4
SUB-WOOFER OUT (AF3)
DM71
1520
1414 3
1411
LINE OUT (FRONT)
DM30
1223
DM 57
DM 59
1510
1580 9
1583 7
FULL KARAOKE
MIC
1301
1303
DM6
DM8
6
6
*
POWER1
1317
1315
LINE-OUT (FRONT) TRAFO
NOTE : THE EXACT TYPES OF CONNCECTOR TO BE DEFINED.
JST PH MALE
FLEX
DIPMATE
JST XH MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
BOARD IN
JST EH MALE

Remarks: * Details of interconnections within POWER1 are not shown here.
POWER1 wiring diagram is available in the POWER1 module documentation.

HVC BOARD

TABLE OF CONTENTS

Electrical parts list 5-1
Circuit diagram 5-2
Component and Chip layout 5-2

ELECTRICAL PARTS LIST - HVC BOARD

MISCELLANEOUS

1420	4822 101 21261	Rotary Encoder
1421	4822 276 13819	Detector Switch 1P

CAPACITORS

2400	4822 122 33177	10nF 20% 50V
2401	4822 122 33177	10nF 20% 50V
2406	4822 126 14083	4µ7 10V

RESISTORS

3400	4822 117 10833	10k 1% 0,1W
3401	4822 117 10833	10k 1% 0,1W
3403	4822 051 20472	4k7 5% 0,1W
3404	4822 051 20472	4k7 5% 0,1W
3405	4822 051 20821	820E 5% 0,1W
3406	4822 051 20821	820E 5% 0,1W
3407	4822 117 10833	10k 1% 0,1W
4401	4822 051 20008	Chip Jumper 0805
4402	4822 051 20008	Chip Jumper 0805

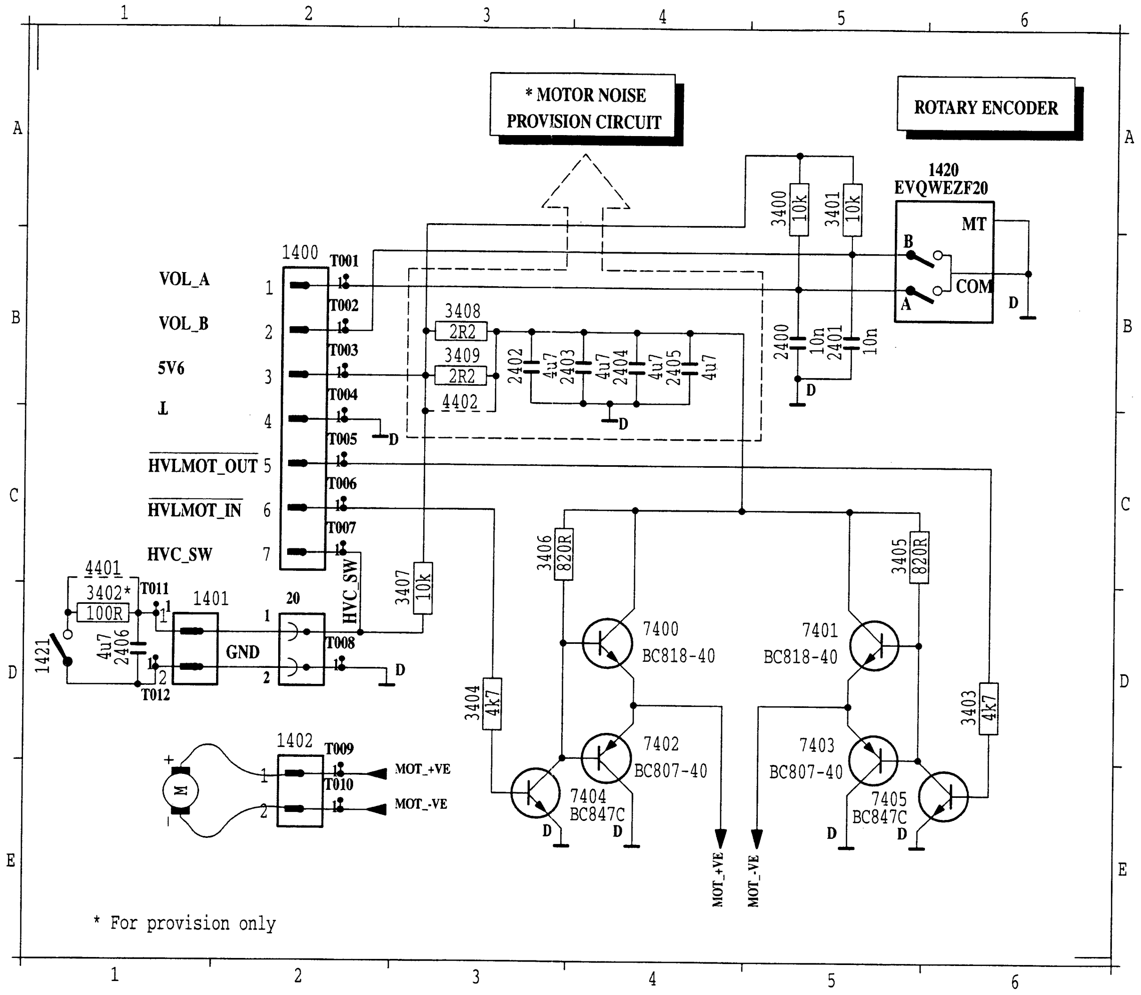
TRANSISTORS

7400	4822 130 42616	BC818-40
7401	4822 130 42616	BC818-40
7402	5322 130 60123	BC807-40
7403	5322 130 60123	BC807-40
7404	5322 130 42755	BC847C
7405	5322 130 42755	BC847C

NOTE: Only the parts mentioned in this list are normal service spare parts.

HVC CIRCUIT

1400 B 2	1421 D 1	2402 B 3	2406 D 1	3403 D 6	3407 D 3	4402 C 3	7403 D 5
1401 D 2	20 D 2	2403 B 3	3400 A 5	3404 D 3	3408 B 3	7400 D 4	7404 E 4
1402 D 2	2400 B 5	2404 B 4	3401 A 5	3405 C 5	3409 B 3	7401 D 5	7405 E 5
1420 A 6	2401 B 5	2405 B 4	3402 D 1	3406 C 3	4401 C 1	7402 D 4	



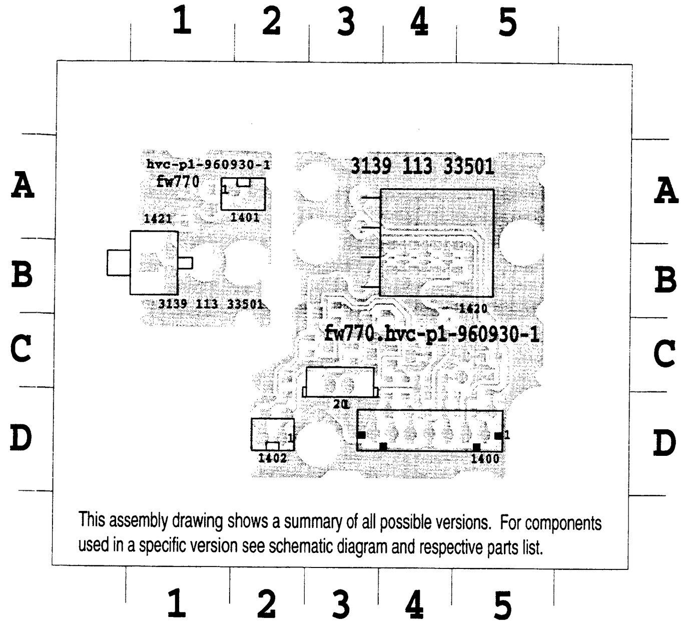
* MOTOR NOISE PROVISION CIRCUIT
ROTARY ENCODER
1420
EVQWEZF20
MT
COM
B
A
1400
VOL_A
VOL_B
5V6
L
HVLMOT_OUT
HVLMOT_IN
HVC_SW
T001
T002
T003
T004
T005
T006
T007
T008
T009
T010
T011
T012
3400 10k
3401 10k
2400 10n
2401 10n
3408 2R2
3409 2R2
4402
2402 4u7
2403 4u7
2404 4u7
2405 4u7
3406 820R
3405 820R
3407 10k
3404 4K7
3403 4K7
7400 BC818-40
7401 BC818-40
7402 BC807-40
7403 BC807-40
7404 BC847C
7405 BC847C
4401
3402* 100R
2406 4u7
1421
1401
20
GND
HVC_SW
1402
MOT_+VE
MOT_-VE
M
D
A
B
C
E
1
2
3
4
5
6

* For provision only

HVC MOVEMENT	HVLMOT_IN	MOT_+VE	HVCMOT_OUT	MOT_-VE
MOVING IN	L	H	H	L
MOVING OUT	H	L	L	H
NOT MOVING	H	L	H	L

HVC COMPONENT LAYOUT

20 C 3	1401 A 2	1420 B 4
1400 D 4	1402 D 2	1421 B 1

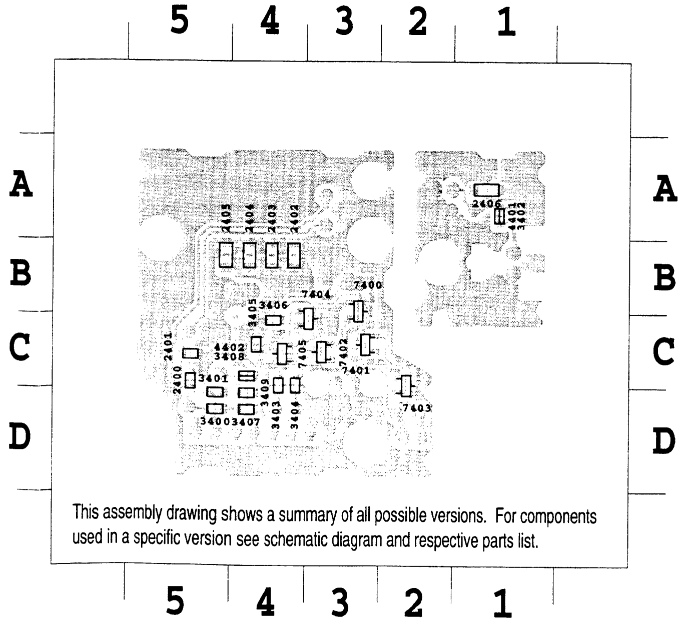


1
2
3
4
5
A
B
C
D
hvc-p1-960930-1
fw770
1421
1401
3139 113 33501
1420
fw770.hvc-p1-960930-1
20
1402
1400

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

HVC SMD LAYOUT - TRACK VIEW

2400 C 5	2405 B 4	3405 C 4	4402 C 4	7404 C 3
2401 C 5	3400 D 5	3406 C 4	7400 B 3	7405 C 4
2402 B 4	3401 D 5	3407 D 4	7401 C 3	
2403 B 4	3403 C 4	3408 C 4	7402 C 3	
2404 B 4	3404 C 4	3409 D 4	7403 C 2	



5
4
3
2
1
A
B
C
D
2405
2404
2403
2402
2406
4401
3402
7400
7404
3406
3405
4402
3408
7402
7401
7403
2402
2400
3401
3400
3407
3403
3409

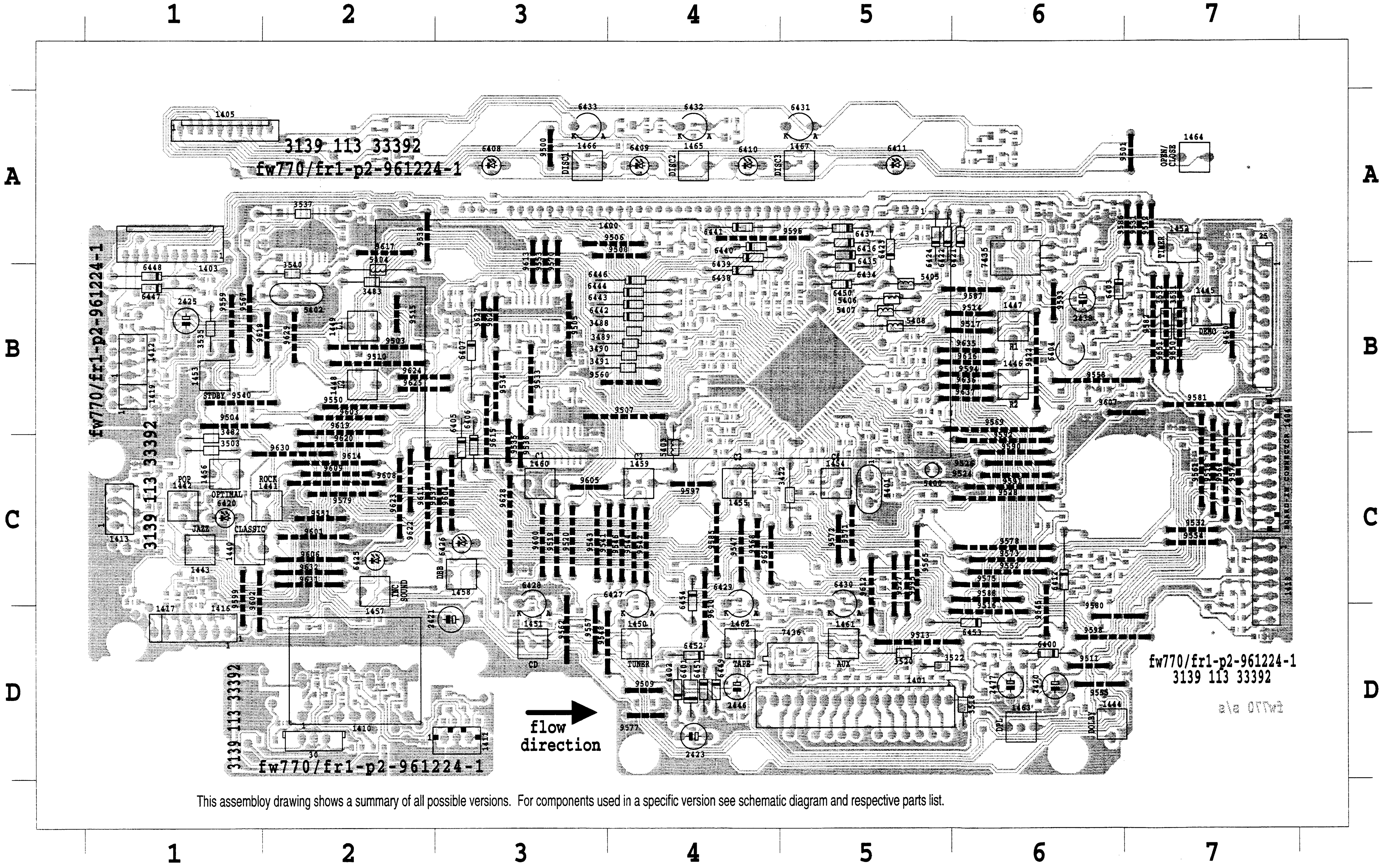
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

VOLTAGE TABLE

ITEM	NOT MOVING			MOVING OUT			MOVING IN		
	E	B	C	E	B	C	E	B	C
7400	0V	0V	5.6V	0.7V	0V	5.6V	4.7V	5.4V	5.6V
7401	0V	0.3V	5.6V	4.7V	5.5V	5.6V	0.7V	0V	5.6V
7402	0V	0V	0V	0.7V	0V	0V	4.7V	5.4V	0V
7403	0V	0V	0V	4.7V	5.4V	0V	0.7V	0V	0V
7404	0V	0.7V	0V	0V	0.7V	0V	0V	0V	5.4V
7405	0V	0.7V	0.3V	0V	0V	5.5V	0V	0.7V	0V

COMPONENT LAYOUT

25 B 7	1418 C 7	1451 D 3	1464 A 7	3483 B 2	3540 B 2	6403 B 6	6423 A 5	6443 B 4	9450 B 7	9513 D 5	9532 C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
30 D 2	1419 B 1	1452 A 7	1465 A 4	3488 B 4	5400 C 5	6404 B 6	6424 A 5	6444 B 4	9500 A 3	9514 B 6	9533 B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
1400 A 4	1440 C 1	1453 B 1	1466 A 3	3489 B 4	5401 C 5	6405 C 3	6425 C 2	6446 B 4	9501 A 7	9516 D 6	9534 B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
1401 D 5	1441 C 2	1454 C 5	1467 A 5	3490 B 4	5402 B 2	6406 C 3	6426 C 3	6447 B 1	9503 B 2	9517 B 6	9535 C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
1403 A 1	1442 C 1	1455 C 4	2420 D 6	3491 B 4	5403 C 4	6407 B 3	6434 B 5	6448 B 1	9504 B 1	9518 C 7	9536 C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	
1404 C 7	1443 C 1	1456 C 1	2421 D 3	3503 C 1	5404 B 2	6408 A 3	6435 A 5	6449 D 4	9505 B 3	9519 C 3	9537 C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	
1405 A 1	1444 D 6	1457 C 2	2423 D 4	3518 D 6	5405 B 5	6409 A 4	6436 A 5	6450 B 5	9506 A 4	9520 C 3	9538 A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9515 B 2
1410 D 2	1445 B 7	1458 C 3	2425 B 1	3520 D 5	5406 B 5	6410 A 4	6437 A 5	6451 D 4	9507 B 4	9522 B 6	9540 B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9577 D 4
1411 D 3	1446 B 6	1459 C 4	2438 B 6	3522 D 5	5407 B 5	6411 A 5	6438 B 4	6452 D 4	9508 A 4	9524 C 6	9541 C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	9607 B 6
1412 B 1	1447 B 6	1460 C 3	2446 D 4	3531 B 7	5408 B 5	6412 C 6	6439 A 4	6453 D 6	9509 D 4	9526 C 6	9542 C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
1413 C 1	1448 B 2	1461 D 5	2477 D 6	3532 B 7	6400 D 6	6420 C 1	6440 A 4	6454 C 4	9510 B 2	9527 C 5	9543 C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
1416 D 1	1449 B 2	1462 D 4	3422 C 5	3535 B 1	6401 D 4	6421 A 6	6441 A 4	7435 A 6	9511 D 6	9528 C 6	9544 C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	
1417 D 1	1450 D 4	1463 D 6	3482 C 1	3537 A 2	6402 D 4	6422 A 5	6442 B 4	7436 D 5	9512 A 7	9531 A 7	9545 D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6	



This assemboly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

FRONT BOARD

(HVC version)

TABLE OF CONTENTS

Component layout 6-1
Circuit diagram 6-2
Chip component layout 6-3
LCD pin connection 6-3
Electrical parts list 6-4

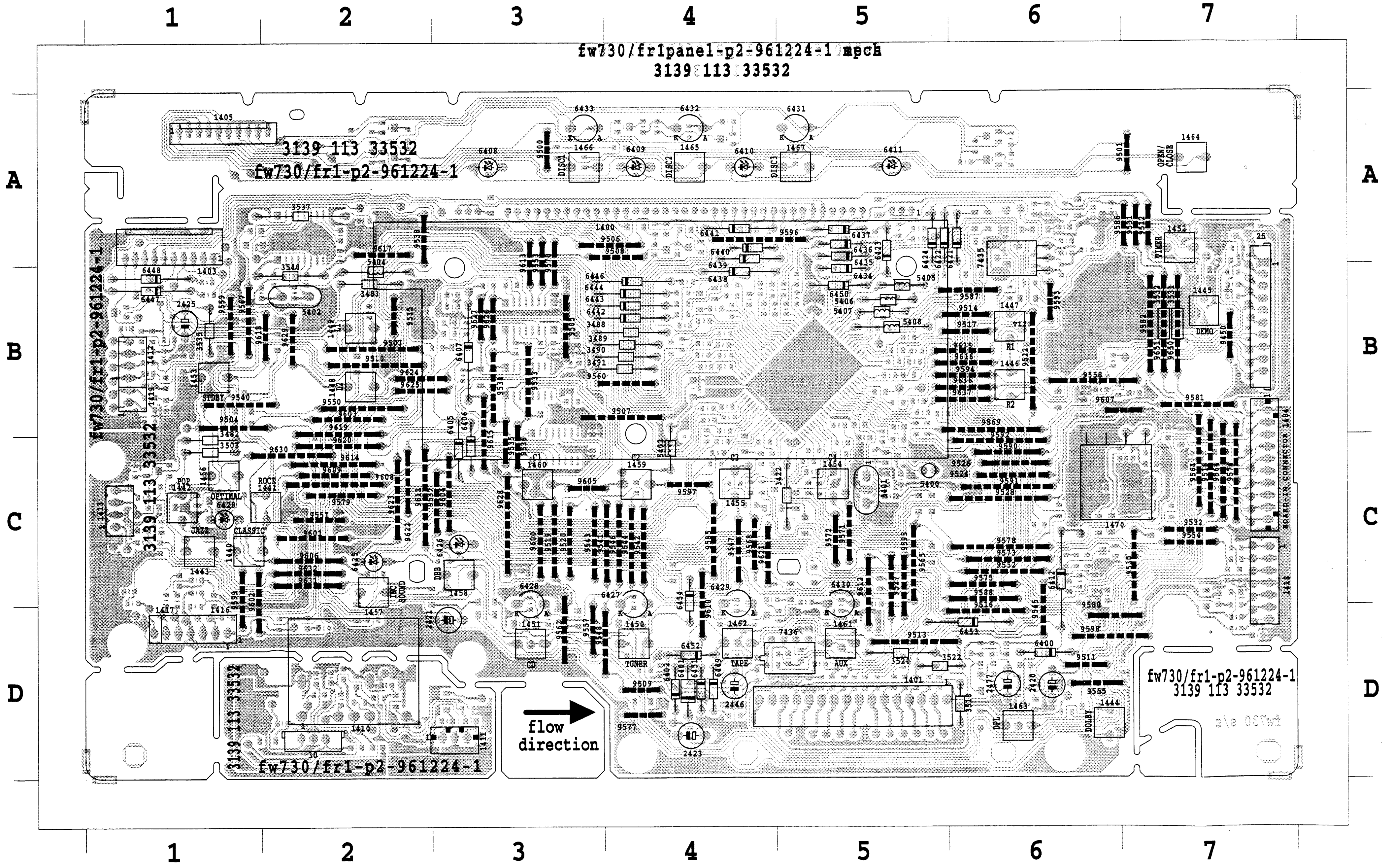
FRONT BOARD

TABLE OF CONTENTS

Component layout 6A-1
Circuit diagram 6A-2
Chip component layout 6A-3
LCD pin connection 6A-3
Electrical parts list 6A-4

COMPONENT LAYOUT DIAGRAM

25	B	7
30	D	2
1400	A	4
1401	D	5
1403	A	1
1404	C	7
1405	A	1
1410	D	2
1411	D	3
1412	B	1
1413	C	1
1416	D	1
1417	D	1
1418	C	7
1419	B	1
1440	C	1
1441	C	2
1442	C	1
1443	C	1
1444	D	6
1445	B	7
1446	B	6
1447	B	6
1448	B	2
1449	B	2
1450	D	4
1451	D	3
1452	A	7
1453	B	1
1454	C	5
1455	C	4
1456	C	1
1457	C	2
1458	C	3
1459	C	4
1460	C	3
1461	D	5
1462	D	4
1463	D	6
1464	A	7
1465	A	4
1466	A	3
1467	A	5
1470	C	6
2420	D	6
2421	D	3
2423	D	4
2425	B	1
2446	D	4
2477	D	6
3422	C	5
3482	C	1
3483	B	2
3488	B	4
3489	B	4
3490	B	4
3491	B	4
3503	C	1
3518	D	6
3520	D	5
3522	D	5
3531	B	7
3532	B	7
3535	B	1
3537	A	2
3540	B	2
5400	C	5
5401	C	5
5402	B	2
5403	C	4
5404	B	2
5405	B	5
5406	B	5
5407	B	5
5408	B	5
6400	D	6
6401	D	4
6402	D	4
6405	C	3
6406	C	3
6407	B	3
6408	A	3
6409	A	4
6410	A	4
6411	A	5
6412	C	6
6420	C	1
6421	A	6
6422	A	5
6423	A	5
6424	A	5
6425	C	2
6426	C	3
6434	B	5
6435	A	5
6436	A	5
6437	A	5
6438	B	4
6439	A	4
6440	A	4
6441	A	4
6442	B	4
6443	B	4
6444	B	4
6446	B	4
6447	B	1
6448	B	1
6449	D	4
6450	B	5
6451	D	4
6452	D	4
6453	D	6
6454	C	4
7435	A	6
7436	D	5
9450	B	7
9500	A	3
9501	A	7
9503	B	2
9504	B	1
9505	B	3
9506	A	4
9507	B	4
9508	A	4
9509	D	4
9510	B	2
9511	D	6
9512	A	7
9513	D	5
9514	B	6
9516	D	6
9517	B	6
9518	C	7
9519	C	3
9520	C	3
9522	B	6
9524	C	6
9526	C	6
9527	C	5
9528	C	6
9530	C	7
9531	A	7
9532	C	7
9533	B	3
9534	B	3
9535	C	3
9536	C	3
9537	C	3
9538	A	2
9540	B	1
9541	C	4
9542	C	4
9543	C	3
9544	C	4
9545	D	6
9546	C	4
9547	C	4
9548	D	4
9550	B	2
9551	C	2
9552	C	6
9553	A	3
9554	C	7
9555	D	6
9557	D	3
9558	B	6
9559	B	1
9560	B	4
9561	C	7
9562	D	3
9564	C	7
9565	C	5
9567	B	1
9568	C	4
9569	B	6
9570	A	3
9571	C	5
9572	C	5
9573	C	6
9574	C	7
9575	C	6
9578	C	6
9579	C	2
9580	D	6
9581	B	7
9582	B	7
9585	C	4
9586	A	7
9587	B	6
9588	C	6
9590	C	6
9591	C	6
9592	C	6
9593	B	6
9594	B	6
9595	C	5
9596	A	4
9597	C	4
9598	D	6
9599	C	1
9600	C	3
9601	C	2
9602	C	1
9603	B	2
9604	C	3
9605	C	3
9606	C	2
9608	C	2
9609	C	2
9610	D	4
9611	C	2
9612	C	5
9613	A	3
9614	C	2
9615	B	3
9616	B	6
9617	A	2
9618	B	2
9619	B	2
9620	C	2
9621	C	4
9622	C	2
9623	C	2
9624	B	2
9625	B	2
9626	B	3
9627	B	3
9628	C	3
9629	B	2
9630	C	2
9631	C	2
9632	C	2
9635	B	6
9636	B	6
9637	B	6
9650	B	7
9651	B	7
9515	B	2
9577	D	4
9607	B	6


1
2
3
4
5
6
7
A
B
C
D
fw730/fr1panel-p2-961224-1 mpch
3139 113 33532
3139 113 33532
fw730/fr1-p2-961224-1
DISC1
DISC2
DISC3
OPEN/CLOSE
TIMER
DEMO
R1
R2
BOARD-IN CONNECTOR 1404
STDBY
POP
ROCK
OPTIMAL
JAZZ
CLASSIC
INC SOUND
DBB
CD
TUNER
TAPE
AUX
DPL
DOLBY
flow direction
fw730/fr1-p2-961224-1
3139 113 33532
fw730 s/s

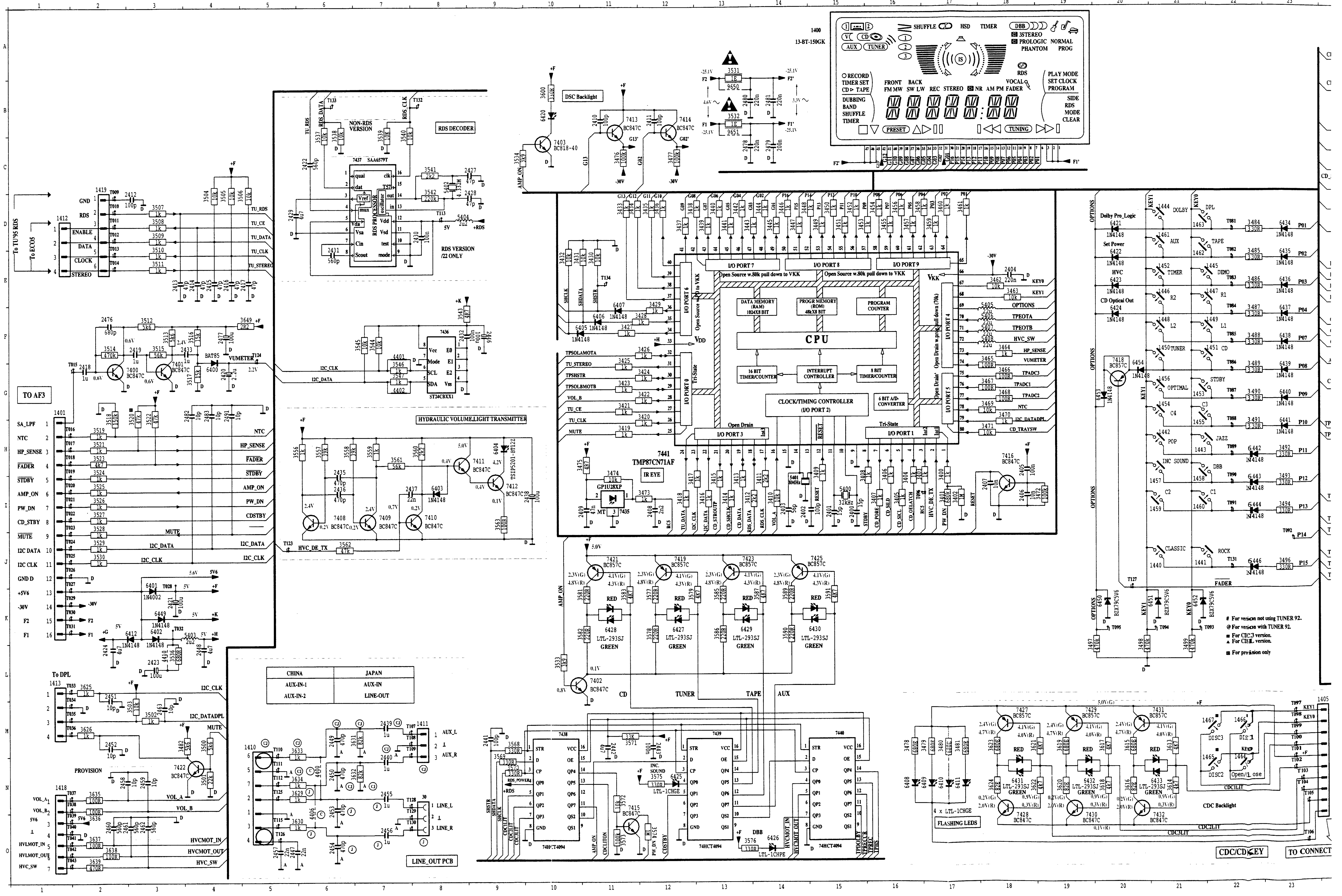
FRONT CIRCUIT

1400	A15	1419	C 2	1451	F22	1463	D21	2407	I18	2419	F 3	2432	F 8	2445	B25	2457	O 5
1401	G 1	1440	J21	1452	E21	1464	N22	2408	I12	2420	G 4	2433	F 4	2446	F 9	2458	N 2
1403	E27	1441	J21	1453	G21	1465	N22	2409	I11	2421	K 3	2435	H 6	2447	O 5	2459	N 3
1404	H28	1442	H21	1454	G21	1466	M22	2410	B11	2422	C 6	2436	I 6	2448	L 4	2460	O 2
1405	M23	1443	H21	1455	H21	1467	M22	2411	B12	2423	L 3	2437	I 8	2449	M 6	2461	O 2
1410	M 5	1444	D21	1456	G21	2400	I15	2412	D 3	2424	L 2	2438	I10	2450	N 6	2462	O 3
1411	M 8	1445	E22	1457	I21	2401	I15	2413	E 3	2425	G26	2439	M 7	2451	L 2	2463	M 3
1412	D 1	1446	E21	1458	I21	2402	I14	2414	E 4	2427	C 9	2440	M 7	2452	M 2	2464	M25
1413	L 1	1447	E22	1459	I21	2403	I14	2415	E 4	2428	D 9	2441	M 9	2453	N 6	2465	M25
1416	M28	1448	F21	1460	I21	2404	E18	2416	E 4	2429	D 5	2442	M11	2454	O 6	2466	M26
1417	M27	1449	F22	1461	D21	2405	H18	2417	E 5	2430	D 8	2443	M12	2455	N 7	2467	O25
1418	N 1	1450	F21	1462	E21	2406	I18	2418	F 2	2431	E 6	2444	A25	2456	O 7	2468	O25

2469	O26	2481	B14	3401	I17	3413	I13	3425	G11	3437	D12	3449	D15	3461	D17	3473	I12
2470	K24	2482	G 3	3402	I17	3414	I13	3426	F12	3438	D12	3450	D15	3462	E18	3474	I11
2471	K25	2483	G 4	3403	I16	3415	I13	3427	F11	3439	D13	3451	D15	3463	E18	3475	H11
2472	K25	2486	E24	3404	I16	3416	I13	3428	F12	3440	D13	3452	D15	3464	F18	3476	C11
2473	K25	2487	E25	3405	I16	3417	I12	3429	F12	3441	D13	3453	D15	3465	G18	3477	C12
2474	K26	2488	E25	3406	I16	3418	I12	3430	E11	3442	D13	3454	D16	3466	G18	3478	M16
2475	K26	2489	E25	3407	I16	3419	H11	3431	E10	3443	D13	3455	D16	3467	G18	3479	M16
2476	F 2	2490	E24	3408	I15	3420	H12	3432	E10	3444	D14	3456	D16	3468	G18	3480	M17
2477	F 4	2491	G 4	3409	H15	3421	G11	3433	D11	3445	D14	3457	D16	3469	G18	3481	M17
2478	C13	25	A26	3410	I14	3422	G12	3434	D11	3446	D14	3458	D16	3470	H18	3482	M 3
2479	C14	30	N 8	3411	I14	3423	G11	3435	D12	3447	D14	3459	D17	3471	H18	3483	G26
2480	B13	3400	I17	3412	I13	3424	G12	3436	D12	3448	D14	3460	D17	3472	I19	3484	D22

3485	E22	3498	L20	3510	E 3	3522	G 3	3534	C 9	3546	G 7	3570	N 9	3583	K11	3605	H26
3486	E22	3499	L21	3511	E 3	3523	H 2	3535	G24	3547	G 7	3571	M11	3585	K13	3606	I26
3487	F22	3500	M 4	3512	F 3	3524	H 2	3536	L 3	3556	H 6	3572	N11	3586	K13	3607	H25
3488	F22	3501	N 4	3513	F 3	3525	I 2	3537	C 6	3557	H 6	3573	O11	3587	K14	3608	H25
3489	G22	3502	M 3	3514	F 2	3526	I 2	3538	B 6	3558	H 6	3574	O12	3589	K14	3609	I25
3490	G22	3503	M 3	3515	F 3	3527	I 2	3539	B 7	3559	H 7	3575	N12	3590	K14	3610	M27
3491	H22	3504	D 4	3516	F 4	3528	I 2	3540	B 7	3560	H 8	3576	O13	3591	K15	3611	M26
3492	H23	3505	D 4	3517	G 4	3529	J 2	3541	C 8	3561	H 7	3577	K12	3600	B10	3612	N27
3493	I23	3506	D 4	3518	G 2	3530	J 2	3542	D 8	3562	J 6	3578	K12	3601	C25	3613	M21
3494	I23	3507	D 3	3519	H 2	3531	A13	3543	F 8	3563	I 9	3579	K12	3602	E27	3614	N21
3496	J23	3508	D 3	3520	G 3	3532	B13	3544	F 7	3568	M 9	3581	K11	3603	E26	3615	M20
3497	L19	3509	D 3	3521	H 2	3533	L10	3545	F 7	3569	N 9	3582	K11	3604	H26	3616	N20

3617	M20	3629	N 5	3641	N27	4400	N 6	5402	C 8	6405	F11	6424	F20	6436	E23
3618	N20	3630	O 5	3642	O26	4401	F 7	5403	K 4	6406	F11	6425	N12	6437	F23
3619	M19	3631	M 7	3643	I27	4402	G 7	5404	D 8	6407	F11	6426	O14	6438	F23
3620	N19	3632	N 7	3644	I27	4404	A25	5405	F18	6408	N16	6427	K12	6439	G23
3621	M18	3633	M 5	3645	J26	4405	B25	5406	F18	6409	N16	6428	K11	6440	G23
3622	N18	3634	N 5	3646	J27	4406	N 6	5407	F18	6410	N17	6429	K13	6441	H23
3623	M18	3635	N 2	3647	J26	4407	I27	5408	F18	6411	N17	6430	K15	6442	H22
3624	N18	3636	O 2	3648	J27	4408	J26	6400	G 4	6412	K 3	6431	N18	6443	I22
3625	L 2	3637	O 2	3649	F 5	4409	J26	6401	J 3	6420	B10	6432	N19	6444	I22
3626	M 2	3638	O 2	3650	C26	4410	L 3	6402	K 3	6421	D20	6433	N21	6446	J22
3627	D26	3639	O 2	3651	B26	5400	I15	6403	I 8	6422	E20	6434	D23	6447	E26
3628	C26	3640	N26	3652	B26	5401	I14	6404	H 9	6423	E20	6435	E23	6448	E26



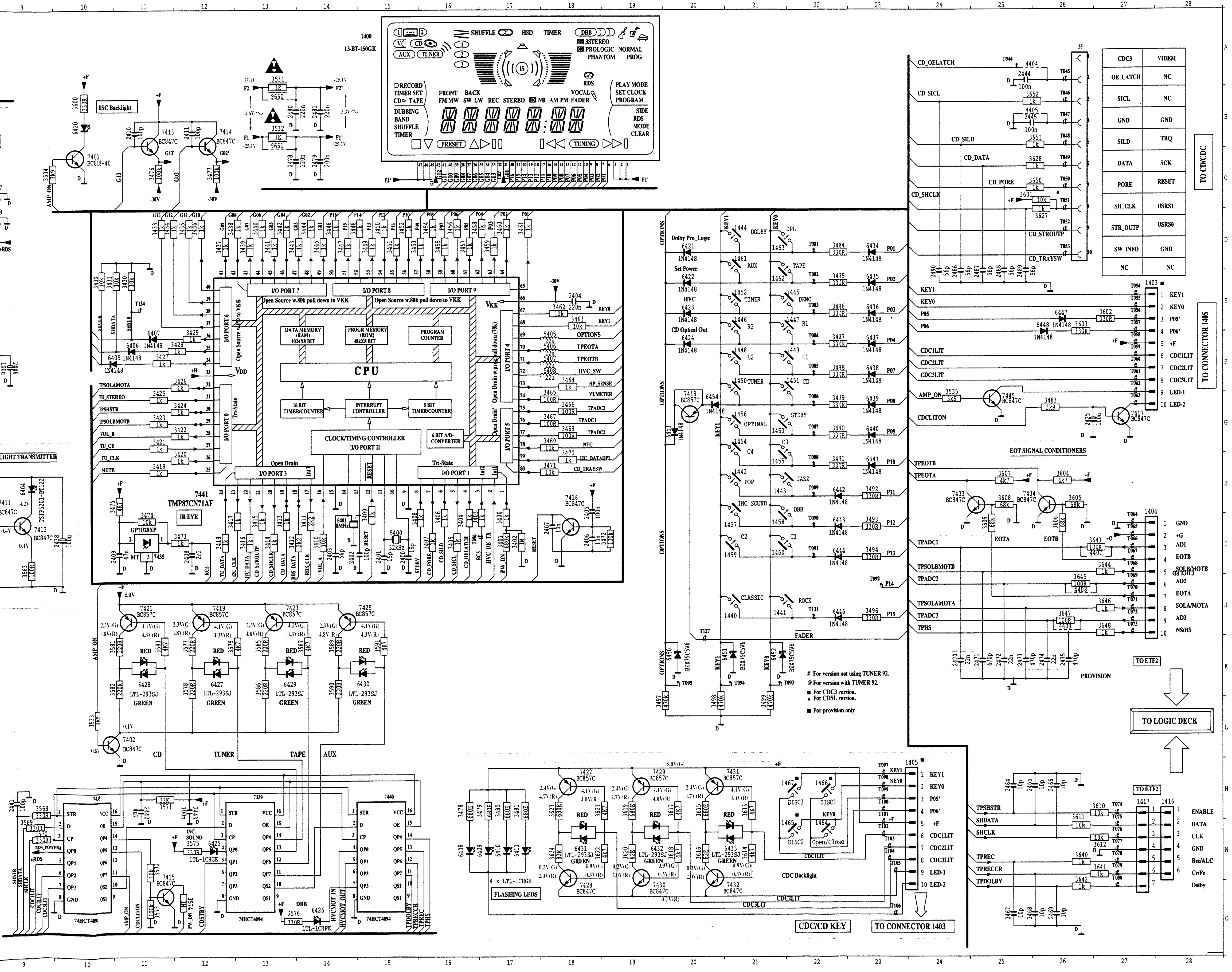
1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC NORMAL
PHANTOM PROG
RECORD
TIMER SET
CD▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT BACK
FM MW SW LW REC STEREO NR AM PM FADER
VOCAL
RDS
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
To TU'95 RDS
To ECO5
TO AF3
7436 ST24C08XX1
HYDRAULIC VOLUME LIGHT TRANSMITTER
7441 TMP87CN71AF
IR EYE
GP1U28XP
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Source w.80k pull down to VKK
Open Drain
Tri-State
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
To DPL
PROVISION
CHINA
JAPAN
AUX-IN-1
AUX-IN
AUX-IN-2
LINE-OUT
AUX_L
AUX_R
LINE_L
LINE_R
LINE_OUT PCB
CD
TUNER
TAPE
AUX
RED
GREEN
LTL-293SJ
74HCT4094
DBB
LTL-1CHPE
FLASHING LEDS
4 x LTL-1CHGE
CDC Backlight
CDC/CD KEY
TO CONNECT
OPTIONS
KEY1
KEY0
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
OPTIMAL
STDBY
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
# For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC-3 version.
▲ For CDL version.
■ For provision only
DISC3
DISC1
DISC2
KEY
Open/Close

	I13	3425	G11	3437	D12	3449	D15	3461	D17	3473	I12	3485	E22
	I13	3426	F12	3438	D12	3450	D15	3462	E18	3474	I11	3486	E22
	I13	3427	F11	3439	D13	3451	D15	3463	E18	3475	H11	3487	F22
	I13	3428	F12	3440	D13	3452	D15	3464	F18	3476	C11	3488	F22
	I12	3429	F12	3441	D13	3453	D15	3465	G18	3477	C12	3489	G22
	I12	3430	E11	3442	D13	3454	D16	3466	G18	3478	M16	3490	G22
	H11	3431	E10	3443	D13	3455	D16	3467	G18	3479	M16	3491	H22
	H12	3432	E10	3444	D14	3456	D16	3468	G18	3480	M17	3492	H23
	G11	3433	D11	3445	D14	3457	D16	3469	G18	3481	M17	3493	I23
	G12	3434	D11	3446	D14	3458	D16	3470	H18	3482	M 3	3494	I23
	G11	3435	D12	3447	D14	3459	D17	3471	H18	3483	G26	3496	J23
	G12	3436	D12	3448	D14	3460	D17	3472	I19	3484	D22	3497	L19

3498	L20	3510	E 3	3522	G 3	3534	C 9	3546	G 7	3570	N 9	3583	K11
3499	L21	3511	E 3	3523	H 2	3535	G24	3547	G 7	3571	M11	3585	K13
3500	M 4	3512	F 3	3524	H 2	3536	L 3	3556	H 6	3572	N11	3586	K13
3501	N 4	3513	F 3	3525	I 2	3537	C 6	3557	H 6	3573	O11	3587	K14
3502	M 3	3514	F 2	3526	I 2	3538	B 6	3558	H 6	3574	O12	3589	K14
3503	M 3	3515	F 3	3527	I 2	3539	B 7	3559	H 7	3575	N12	3590	K14
3504	D 4	3516	F 4	3528	I 2	3540	B 7	3560	H 8	3576	O13	3591	K15
3505	D 4	3517	G 4	3529	J 2	3541	C 8	3561	H 7	3577	K12	3600	B10
3506	D 4	3518	G 2	3530	J 2	3542	D 8	3562	J 6	3578	K12	3601	C25
3507	D 3	3519	H 2	3531	A13	3543	F 8	3563	I 9	3579	K12	3602	E27
3508	D 3	3520	G 3	3532	B13	3544	F 7	3568	M 9	3581	K11	3603	E26
3509	D 3	3521	H 2	3533	L10	3545	F 7	3569	N 9	3582	K11	3604	H26

3605	H26	3617	M20	3629	N 5	3641	N27	4400	N 6	5402	C 8	6405	F11
3606	I26	3618	N20	3630	O 5	3642	O26	4401	F 7	5403	K 4	6406	F11
3607	H25	3619	M19	3631	M 7	3643	I27	4402	G 7	5404	D 8	6407	F11
3608	H25	3620	N19	3632	N 7	3644	I27	4404	A25	5405	F18	6408	N16
3609	I25	3621	M18	3633	M 5	3645	J26	4405	B25	5406	F18	6409	N16
3610	M27	3622	N18	3634	N 5	3646	J27	4406	N 6	5407	F18	6410	N17
3611	M26	3623	M18	3635	N 2	3647	J26	4407	I27	5408	F18	6411	N17
3612	N27	3624	N18	3636	O 2	3648	J27	4408	J26	6400	G 4	6412	K 3
3613	M21	3625	L 2	3637	O 2	3649	F 5	4409	J26	6401	J 3	6420	B10
3614	N21	3626	M 2	3638	O 2	3650	C26	4410	L 3	6402	K 3	6421	D20
3615	M20	3627	D26	3639	O 2	3651	B26	5400	I15	6403	I 8	6422	E20
3616	N20	3628	C26	3640	N26	3652	B26	5401	I14	6404	H 9	6423	E20

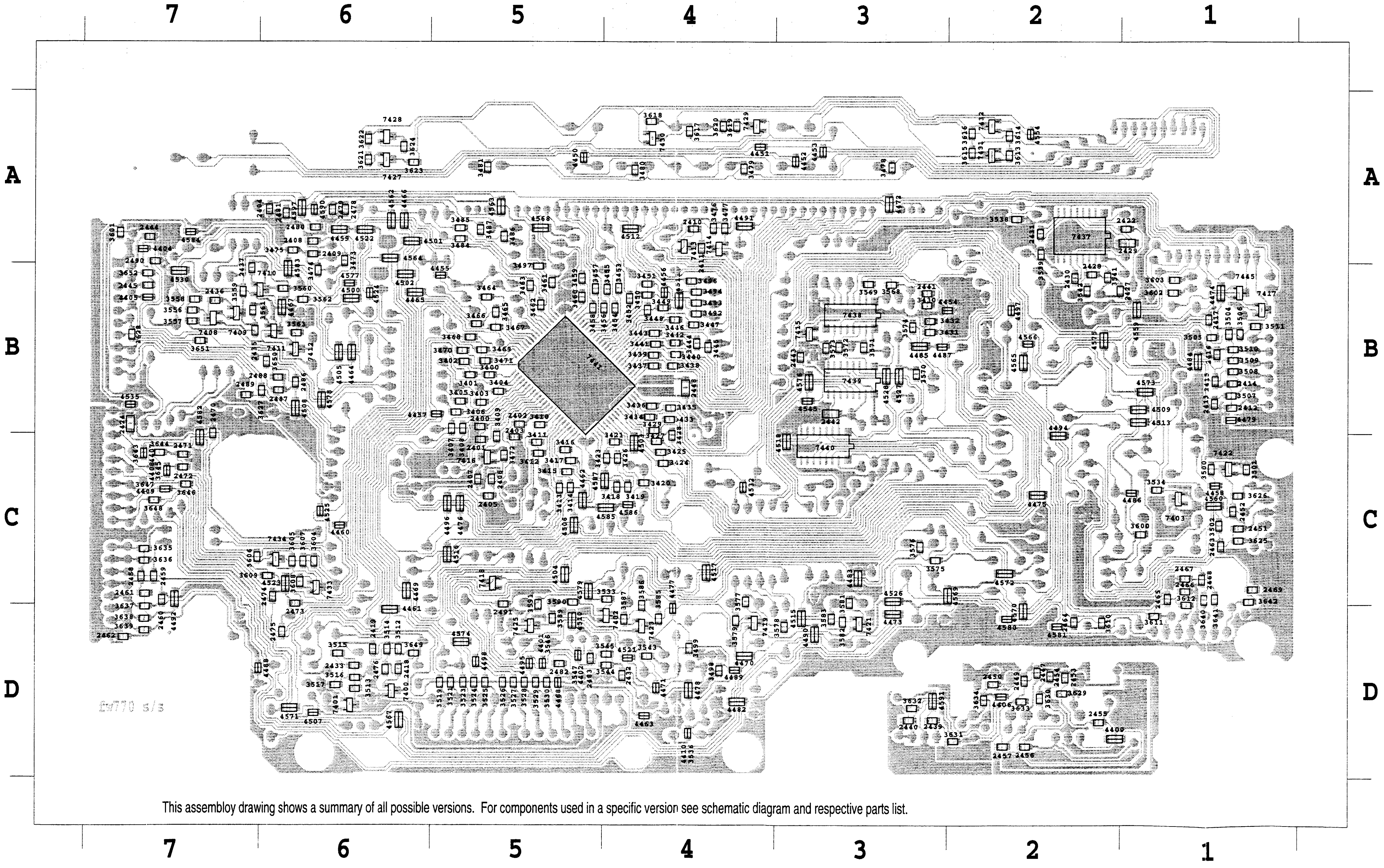
6424	F20	6436	E23	6449	K 3	7410	I 8	7423	J14	7437	C 6
6425	N12	6437	F23	6450	K20	7411	H 9	7425	J15	7438	M10
6426	O14	6438	F23	6451	K20	7412	I 9	7427	M18	7439	M13
6427	K12	6439	G23	6452	K21	7413	B11	7428	O18	7440	M15
6428	K11	6440	G23	6453	G20	7414	B12	7429	M20	7441	H12
6429	K13	6441	H23	6454	G20	7415	N11	7430	O20	7445	G25
6430	K15	6442	H22	7400	G 2	7416	H18	7431	M21	9650	B13
6431	N18	6443	I22	7401	G 3	7417	G27	7432	O21	9651	B13
6432	N19	6444	I22	7402	L11	7418	F20	7433	H24		
6433	N21	6446	J22	7403	C10	7419	J12	7434	H26		
6434	D23	6447	E26	7408	I 6	7421	J11	7435	I11		
6435	E23	6448	E26	7409	I 7	7422	N 4	7436	F 8		



9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
A B C D E F G H I J K L M N O
1400
13-BT-150GK
SHUFFLE HSD TIMER DBB
3STEREO
PROLOGIC NORMAL
PHANTOM PROG
VC CD AUX TUNER
RECORD TIMER SET CD▷ TAPE
FRONT BACK FM MW SW LW REC STEREO NR AM PM FADER VOCAL RDS
PLAY MODE SET CLOCK PROGRAM
DUBBING BAND SHUFFLE TIMER
SIDE RDS MODE CLEAR
PRESET TUNING
DSC Backlight
7403 BC818-40
7413 BC847C
7414 BC847C
AMP_ON
7441
TMP87CN71AF
CPU
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
I/O PORT 7 I/O PORT 8 I/O PORT 9
I/O PORT 6 I/O PORT 0 I/O PORT 3 I/O PORT 1 I/O PORT 4 I/O PORT 5
Open Source w.80k pull down to VKK
Open Drain Tri-State VDD VKK
IR EYE
GP1U28XP
LIGHT TRANSMITTER
TSF5201-BT22
OPTIONS
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
KEY1 KEY0
DOLBY DPL AUX TAPE TIMER DEMO R2 R1 L2 L1 TUNER CD OPTIMAL STDBY C3 C4 POP JAZZ INC SOUND DBB C2 C1 CLASSIC ROCK
FADER
7418 BC857C
BZX79C5V6
# For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC3 version.
▲ For CDSL version.
▨ For provision only
7421 BC857C 7419 BC857C 7423 BC857C 7425 BC857C
LTL-293SJ RED GREEN
7402 BC847C
CD TUNER TAPE AUX
74HCT4094
INC. SOUND
DBB
LTL-1CHGE LTL-1CHPE
HVCMOT_IN HVCMOT_OUT
4 x LTL-1CHGE
FLASHING LEDS
7427 BC857C 7429 BC857C 7431 BC857C
7428 BC847C 7430 BC847C 7432 BC847C
DISC3 DISC1 DISC2 Open/Close
CDC Backlight
CDC/CD KEY
TO CONNECTOR 1403
CD_OELATCH CD_SICL CD_SILD CD_DATA CD_PORE CD_SHCLK CD_STROUTP CD_TRAYSW
CDC3 VIDEM
OE_LATCH NC
SICL NC
GND GND
SILD TRQ
DATA SCK
PORE RESET
SH_CLK USRS1
STR_OUTP USRS0
SW_INFO GND
NC NC
TO CD/CDC
1403
1 KEY1 2 KEY0 3 P05' 4 P06' 5 +F 6 CDC1LIT 7 CDC2LIT 8 CDC3LIT 9 LED-1 10 LED-2
TO CONNECTOR 1405
7445 BC847C 7417 BC847C
EOT SIGNAL CONDITIONERS
7433 BC847C 7434 BC847C
EOTA EOTB
1404
1 GND 2 +G 3 AD1 4 EOTB 5 SOLB/MOTB 6 AD2 7 EOTA 8 SOLA/MOTA 9 AD3 10 NS/HS
PROVISION
TO ETF2
TO LOGIC DECK
1417 1416
ENABLE DATA CLK GND Rec/ALC Cr/Fe Dolby
TPSHSTR SHDATA SHCLK TPREC TPRECCR TPDOLBY
1405
1 KEY1 2 KEY0 3 P05' 4 P06' 5 +F 6 CDC1LIT 7 CDC2LIT 8 CDC3LIT 9 LED-1 10 LED-2

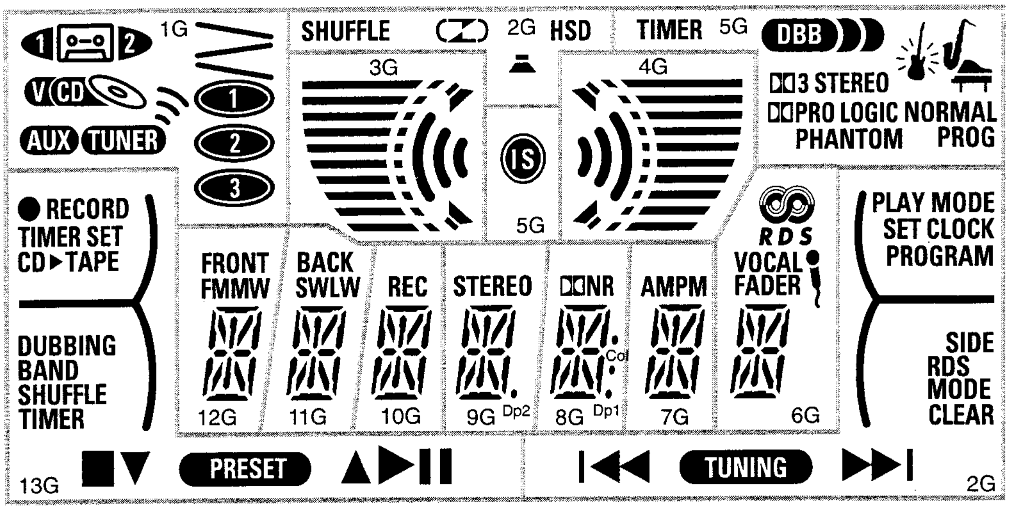
CHIP LAYOUT

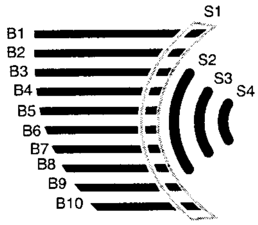
2400 B 5	2429 A 1	2456 D 2	2481 A 6	3415 C 5	3440 B 4	3464 B 5	3494 B 4	3523 D 5	3560 B 6	3591 D 5	3623 A 6	3647 C 7	4458 C 1	4484 B 1	4510 D 5	4563 A 5	4587 C 4	7427 A 6
2401 C 5	2430 B 2	2457 D 2	2482 D 5	3416 C 5	3441 B 4	3465 B 5	3496 B 4	3524 D 5	3561 B 7	3600 C 1	3624 A 6	3648 C 7	4459 A 6	4485 B 3	4511 B 4	4564 A 6	4590 A 6	7428 A 6
2402 B 5	2431 A 2	2458 C 7	2483 D 5	3417 C 5	3442 B 4	3466 B 5	3497 B 5	3525 D 5	3562 B 6	3601 A 7	3625 C 1	3649 D 6	4460 C 6	4486 C 1	4512 A 4	4565 B 2	4591 D 3	7429 A 4
2403 C 5	2432 D 4	2459 C 7	2486 B 6	3418 C 4	3443 B 4	3467 B 5	3498 D 4	3526 D 5	3563 B 6	3602 B 1	3626 C 1	3650 B 6	4461 D 6	4487 B 3	4513 B 1	4566 B 2	4597 A 6	7430 A 4
2404 A 6	2433 D 6	2460 C 7	2487 B 6	3419 C 4	3444 B 4	3468 B 5	3499 D 4	3527 D 5	3568 B 3	3603 B 1	3627 B 6	3651 B 7	4462 C 5	4488 D 7	4515 D 3	4567 D 6	7400 D 6	7431 A 2
2405 C 5	2435 B 7	2461 C 7	2488 B 6	3420 C 4	3445 B 4	3469 B 5	3500 C 1	3528 D 5	3569 B 3	3604 C 6	3628 B 7	3652 B 7	4463 D 4	4489 D 4	4516 C 5	4568 A 5	7401 D 6	7432 A 2
2406 C 5	2436 B 7	2462 D 7	2489 B 7	3421 C 4	3446 B 4	3470 B 5	3501 C 1	3529 D 5	3570 B 3	3605 C 6	3629 D 2	4400 D 2	4464 B 6	4490 D 3	4517 C 4	4569 C 2	7402 D 4	7433 C 6
2407 C 5	2437 B 7	2463 C 1	2490 A 7	3423 C 4	3447 B 4	3471 B 5	3502 C 1	3530 D 5	3571 B 3	3606 C 7	3630 D 2	4401 D 5	4465 B 6	4491 A 4	4518 C 3	4570 D 2	7403 C 1	7434 C 6
2408 A 6	2439 D 3	2464 D 2	2491 D 5	3424 C 4	3448 B 4	3472 C 5	3504 B 1	3533 C 4	3572 B 3	3607 C 6	3631 D 2	4402 D 5	4466 A 6	4492 C 7	4521 D 4	4571 D 6	7408 B 7	7437 A 2
2409 A 6	2440 D 3	2465 C 1	3400 B 5	3425 C 4	3449 B 4	3473 A 6	3505 B 1	3534 C 1	3573 B 3	3608 C 6	3632 D 3	4404 A 7	4467 B 6	4494 C 2	4522 A 6	4572 C 2	7409 B 7	7438 B 3
2410 A 4	2441 B 3	2466 C 1	3401 B 5	3426 C 4	3450 B 4	3474 B 6	3506 B 1	3536 D 4	3574 B 3	3609 C 6	3633 D 2	4405 B 7	4468 D 5	4495 D 5	4523 C 6	4573 B 1	7410 B 6	7439 B 3
2411 A 4	2442 B 3	2467 C 1	3402 B 5	3427 C 4	3451 B 4	3475 A 6	3507 B 1	3538 A 2	3575 C 3	3610 D 2	3634 D 2	4406 D 2	4469 C 6	4496 C 5	4524 B 6	4574 D 5	7411 B 6	7440 C 3
2412 B 1	2443 B 3	2468 C 1	3403 B 5	3428 C 4	3452 B 4	3476 A 4	3508 B 1	3539 A 2	3576 C 3	3611 D 1	3635 C 7	4407 C 7	4470 D 4	4497 B 2	4525 C 6	4575 B 2	7412 B 6	7441 B 5
2413 B 1	2444 A 7	2469 C 1	3404 B 5	3429 B 4	3453 B 4	3477 A 4	3509 B 1	3541 B 2	3577 C 4	3612 D 1	3636 C 7	4408 C 7	4471 D 4	4498 D 5	4526 C 3	4576 B 3	7413 A 4	7445 B 1
2414 B 1	2445 B 7	2470 C 7	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3510 B 1	3542 B 2	3578 D 3	3613 A 2	3637 D 7	4409 C 7	4472 A 3	4500 B 6	4527 B 3	4577 B 6	7414 A 4	
2415 B 1	2447 D 2	2471 C 7	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3511 B 1	3543 D 4	3579 D 4	3614 A 2	3638 D 7	4410 D 4	4473 D 3	4501 A 6	4528 B 3	4578 B 6	7415 B 3	
2416 B 1	2448 B 4	2472 C 7	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3512 D 6	3544 D 4	3581 C 3	3615 A 2	3639 D 7	4450 A 5	4474 B 1	4502 B 6	4530 B 7	4579 C 5	7416 C 5	
2417 B 1	2449 D 2	2473 C 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3513 D 6	3545 D 4	3582 D 3	3616 A 2	3640 C 1	4451 A 4	4475 C 2	4503 C 4	4532 C 4	4580 D 2	7417 B 1	
2418 D 6	2450 D 2	2474 C 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3514 D 6	3546 D 5	3583 D 3	3617 A 4	3641 C 1	4452 A 3	4476 C 5	4504 C 5	4535 B 7	4581 D 2	7418 C 5	
2419 D 6	2451 C 1	2475 D 6	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3515 D 6	3547 D 5	3585 D 4	3618 A 4	3642 C 1	4453 A 3	4477 D 4	4505 B 6	4545 B 3	4582 C 7	7419 D 4	
2422 A 1	2452 C 1	2476 D 6	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3516 D 6	3556 B 7	3586 D 4	3619 A 4	3643 C 7	4454 B 3	4478 D 4	4506 C 5	4554 A 2	4583 B 6	7421 D 3	
2424 B 7	2453 D 2	2478 A 6	3412 C 5	3437 B 4	3461 B 5	3487 A 5	3517 D 6	3557 B 7	3587 D 4	3620 A 4	3644 C 7	4455 B 5	4479 B 1	4507 D 6	4559 B 1	4584 A 7	7422 C 1	
2427 B 2	2454 D 2	2479 A 6	3413 C 5	3438 B 4	3462 B 5	3492 B 4	3519 D 5	3558 B 7	3589 D 5	3621 A 6	3645 C 7	4456 B 4	4482 D 4	4508 B 6	4560 C 1	4585 C 4	7423 D 4	
2428 B 2	2455 D 2	2480 A 6	3414 C 5	3439 B 4	3463 B 5	3493 B 4	3521 D 5	3559 B 7	3590 C 5	3622 A 6	3646 C 7	4457 B 5	4483 C 3	4509 B 1	4562 A 6	4586 C 4	7425 D 5	



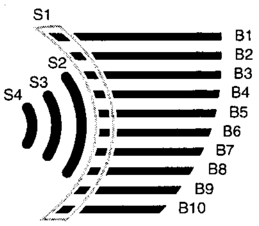
This assembloy drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

LCD DISPLAY PIN CONNECTIONS

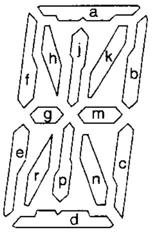

1G
SHUFFLE
2G
HSD
TIMER
5G
DBB
3G
4G
DD3 STEREO
DDPRO LOGIC NORMAL
PHANTOM
PROG
V CD
AUX
TUNER
1
2
3
IS
5G
RDS
● RECORD
TIMER SET
CD▶TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
FMMW
BACK
SWLW
REC
STEREO
DDNR
AMPM
VOCAL
FADER
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
Col
12G
11G
10G
9G
Dp2
8G
Dp1
7G
6G
13G
PRESET
TUNING
2G


S1
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
S2
S3
S4

(3G)


S1
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
S2
S3
S4

(4G)


a
b
c
d
e
f
g
h
j
k
m
n
p
r

(6G - 12G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	1	SHUFFLE	B1	B1	IS	a	a	a	a	a	a	a	● RECORD
P2	▭	)	B2	B2	○	b	b	b	b	b	b	b	TIMER SET
P3	2	(	B3	B3	TIMER	f	f	f	f	f	f	f	CD▶TAPE
P4	V	⧗	B4	B4	DBB	h	h	h	h	h	h	h	DUBBING
P5	CD	HSD	B5	B5	)	k	k	k	k	k	k	k	BAND
P6	AUX	⏏	B6	B6	)	j , p	j , p	j , p	j , p	j , p	j , p	j , p	SHUFFLE
P7	TUNER	PLAY MODE	B7	B7	🎸	g	g	g	g	g	g	g	TIMER
P8	—	SET CLOCK	B8	B8	✳	m	m	m	m	m	m	m	┤
P9	—	PROGRAM	B9	B9	🎷	e	e	e	e	e	e	e	PRESET
P10	—	SIDE	B10	B10	🎹	c	c	c	c	c	c	c	■
P11	1	RDS MODE	S1	S1	DD3 STEREO	n	n	n	n	n	n	n	▼ ▲
P12	2	CLEAR	S4	S4	DDPRO LOGIC	r	r	r	r	r	r	r	▶
P13	3	├	S3	S3	PHANTOM	d	d	d	d	d	d	d	❚❚
P14	(1)	I I	S2	S2	NORMAL	VOCAL FADER	AM	DDNR	STEREO	REC	BACK	FRONT	-
P15	(2)	◀◀ ▶▶	/	\	PROG	RDS	PM	• Dp 1	• Dp 2	-	SW	FM	-
P16	(3)	TUNING	\	/	-	-	-	: col	-	-	LW	MW	-

ELECTRICAL PARTS LIST - FRONT BOARD (HVC version)

3502	4822 051 10102	1k 2% 0,25W
3503	4822 116 83864	10k 5% 0,5W
3504	4822 117 10833	10k 1% 0,1W
3505	4822 117 10833	10k 1% 0,1W
3506	4822 117 10833	10k 1% 0,1W
3507	4822 051 10102	1k 2% 0,25W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 051 10102	1k 2% 0,25W
3511	4822 051 10102	1k 2% 0,25W
3512	4822 051 20562	5k6 5% 0,1W
3513	4822 051 20562	5k6 5% 0,1W
3514	4822 051 20474	470k 5% 0,1W
3515	4822 051 20563	56k 5% 0,1W
3516	4822 051 20153	15k 5% 0,1W
3517	4822 051 20153	15k 5% 0,1W
3518	4822 116 52245	150k 5% 0,5W
3519	4822 051 10102	1k 2% 0,25W
3521	4822 051 10102	1k 2% 0,25W
3522	4822 116 83884	47k 5% 0,5W
3523	4822 051 20472	4k7 5% 0,1W
3524	4822 051 10102	1k 2% 0,25W
3525	4822 051 10102	1k 2% 0,25W
3526	4822 051 10102	1k 2% 0,25W
3527	4822 051 10102	1k 2% 0,25W
3528	4822 051 10102	1k 2% 0,25W
3529	4822 051 10102	1k 2% 0,25W
3530	4822 051 10102	1k 2% 0,25W
3531	4822 052 10108 ⚠	1E 5% 0,33W
3532	4822 052 10108 ⚠	1E 5% 0,33W
3533	4822 051 20392	3k9 5% 0,1W
3535	4822 116 52276	3k9 5% 0,5W
3536	4822 051 20681	680E 5% 0,1W
3537	4822 116 83864	10k 5% 0,5W
3538	4822 117 10833	10k 1% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3540	4822 116 83864	10k 5% 0,5W
3541	4822 117 11449	2k2 1% 0,1W
3542	4822 051 20224	220k 5% 0,1W
3543	4822 051 20478	4E7 5% 0,1W
3544	4822 117 10833	10k 1% 0,1W
3545	4822 117 10833	10k 1% 0,1W
3546	4822 051 10102	1k 2% 0,25W
3547	4822 051 10102	1k 2% 0,25W
3556	4822 051 10102	1k 2% 0,25W
3557	4822 051 20393	39k 5% 0,1W
3558	4822 051 20393	39k 5% 0,1W
3559	4822 051 10102	1k 2% 0,25W
3560	4822 117 11449	2k2 1% 0,1W
3561	4822 051 20563	56k 5% 0,1W
3562	4822 051 20473	47k 5% 0,1W
3563	4822 051 20101	100E 5% 0,1W
3568	4822 051 20331	330E 5% 0,1W
3569	4822 051 20331	330E 5% 0,1W
3570	4822 051 20331	330E 5% 0,1W
3571	4822 051 20333	33k 5% 0,1W
3572	4822 117 10833	10k 1% 0,1W
3573	4822 051 20104	100k 5% 0,1W
3574	4822 051 20105	1M 5% 0,1W
3575	4822 051 20331	330E 5% 0,1W
3576	4822 051 20331	330E 5% 0,1W
3577	4822 117 11503	220E 1% 0,1W
3578	4822 117 11503	220E 1% 0,1W
3579	4822 051 20472	4k7 5% 0,1W
3581	4822 117 11503	220E 1% 0,1W
3582	4822 117 11503	220E 1% 0,1W
3583	4822 051 20472	4k7 5% 0,1W
3585	4822 117 11503	220E 1% 0,1W
3586	4822 117 11503	220E 1% 0,1W
3587	4822 051 20472	4k7 5% 0,1W
3589	4822 117 11503	220E 1% 0,1W
3590	4822 117 11503	220E 1% 0,1W
3591	4822 051 20472	4k7 5% 0,1W
3602	4822 051 20331	330E 5% 0,1W
3603	4822 051 20331	330E 5% 0,1W
3604	4822 051 20472	4k7 5% 0,1W
3605	4822 051 20683	68k 5% 0,1W
3606	4822 051 20683	68k 5% 0,1W
3607	4822 051 20472	4k7 5% 0,1W
3608	4822 051 20683	68k 5% 0,1W
3609	4822 051 20683	68k 5% 0,1W
3610	4822 117 10833	10k 1% 0,1W
3611	4822 117 10833	10k 1% 0,1W
3612	4822 117 10833	10k 1% 0,1W
3613	4822 051 20472	4k7 5% 0,1W
3614	4822 051 20472	4k7 5% 0,1W
3615	4822 051 20681	680E 5% 0,1W
3616	4822 051 20829	82E 5% 0,1W
3617	4822 051 20472	4k7 5% 0,1W
3618	4822 051 20472	4k7 5% 0,1W
3619	4822 051 20681	680E 5% 0,1W
3620	4822 051 20829	82E 5% 0,1W
3621	4822 051 20472	4k7 5% 0,1W
3622	4822 051 20472	4k7 5% 0,1W
3623	4822 051 20681	680E 5% 0,1W
3624	4822 051 20829	82E 5% 0,1W
3625	4822 051 10102	1k 2% 0,25W
3626	4822 051 10102	1k 2% 0,25W
3627	4822 051 10102	1k 2% 0,25W
3628	4822 051 10102	1k 2% 0,25W
3629	4822 051 10102	1k 2% 0,25W
3630	4822 051 10102	1k 2% 0,25W
3631	4822 117 11149	82k 1% 0,1W
3632	4822 117 11149	82k 1% 0,1W
3633	4822 051 10102	1k 2% 0,25W
3634	4822 051 10102	1k 2% 0,25W

ELECTRICAL PARTS LIST - FRONT BOARD (HVC version)

2489	5322 122 32661	56pF 5% 50V
2490	5322 122 32661	56pF 5% 50V
2491	5322 122 32448	10pF 5% 50V

RESISTORS

3400	4822 051 10102	1k 2% 0,25W
3401	4822 051 20684	680k 5% 0,1W
3402	4822 051 20105	1M 5% 0,1W
3403	4822 051 10102	1k 2% 0,25W
3404	4822 051 10102	1k 2% 0,25W
3405	4822 051 10102	1k 2% 0,25W
3406	4822 051 10102	1k 2% 0,25W
3407	4822 051 10102	1k 2% 0,25W
3408	4822 051 10102	1k 2% 0,25W
3409	4822 051 10102	1k 2% 0,25W
3410	4822 117 10833	10k 1% 0,1W
3411	4822 117 11449	2k2 1% 0,1W
3412	4822 117 11449	2k2 1% 0,1W
3413	4822 051 10102	1k 2% 0,25W
3414	4822 051 10102	1k 2% 0,25W
3415	4822 051 10102	1k 2% 0,25W
3416	4822 051 10102	1k 2% 0,25W
3417	4822 051 10102	1k 2% 0,25W
3418	4822 051 10102	1k 2% 0,25W
3419	4822 051 10102	1k 2% 0,25W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 050 11002	1k 1% 0,4W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 117 10833	10k 1% 0,1W
3431	4822 117 10833	10k 1% 0,1W
3432	4822 117 10833	10k 1% 0,1W
3433	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3448	4822 051 10102	1k 2% 0,25W
3449	4822 051 10102	1k 2% 0,25W
3450	4822 051 10102	1k 2% 0,25W
3451	4822 051 10102	1k 2% 0,25W
3452	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 051 10102	1k 2% 0,25W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 051 10102	1k 2% 0,25W
3457	4822 051 10102	1k 2% 0,25W
3458	4822 051 10102	1k 2% 0,25W
3459	4822 051 10102	1k 2% 0,25W
3460	4822 051 10102	1k 2% 0,25W
3461	4822 051 10102	1k 2% 0,25W
3462	4822 117 10833	10k 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 051 10102	1k 2% 0,25W
3465	4822 051 20101	100E 5% 0,1W
3466	4822 051 20101	100E 5% 0,1W
3467	4822 051 20101	100E 5% 0,1W
3468	4822 051 20101	100E 5% 0,1W
3469	4822 117 10833	10k 1% 0,1W
3470	4822 051 10102	1k 2% 0,25W
3471	4822 117 10833	10k 1% 0,1W
3472	4822 051 20104	100k 5% 0,1W
3473	4822 051 10102	1k 2% 0,25W
3474	4822 117 10833	10k 1% 0,1W
3475	4822 051 20478	4E7 5% 0,1W
3476	4822 051 20104	100k 5% 0,1W
3477	4822 051 20104	100k 5% 0,1W
3478	4822 051 20681	680E 5% 0,1W
3479	4822 051 20681	680E 5% 0,1W
3480	4822 051 20681	680E 5% 0,1W
3481	4822 051 20681	680E 5% 0,1W
3482	4822 116 52289	5k6 5% 0,5W
3483	4822 116 52276	3k9 5% 0,5W
3484	4822 051 20331	330E 5% 0,1W
3485	4822 051 20331	330E 5% 0,1W
3486	4822 051 20331	330E 5% 0,1W
3487	4822 051 20331	330E 5% 0,1W
3488	4822 116 52219	330E 5% 0,5W
3489	4822 116 52219	330E 5% 0,5W
3490	4822 116 52219	330E 5% 0,5W
3491	4822 116 52219	330E 5% 0,5W
3492	4822 051 20331	330E 5% 0,1W
3493	4822 051 20331	330E 5% 0,1W
3494	4822 051 20331	330E 5% 0,1W
3496	4822 051 20331	330E 5% 0,1W
3497	4822 051 20474	470k 5% 0,1W
3498	4822 051 20474	470k 5% 0,1W
3499	4822 051 20474	470k 5% 0,1W
3500	4822 051 20562	5k6 5% 0,1W
3501	4822 051 20223	22k 5% 0,1W

ELECTRICAL PARTS LIST - FRONT BOARD (HVC version)

MISCELLANEOUS

1400	4822 135 00091	FTD Display 13-BT-150GK
1401	4822 267 51238	16Pin Connector
1410	4822 267 31823	4P Cinch Socket
1440	4822 276 13114	Tact Switch
1441	4822 276 13114	Tact Switch
1442	4822 276 13114	Tact Switch
1443	4822 276 13114	Tact Switch
1445	4822 276 13114	Tact Switch
1446	4822 276 13114	Tact Switch
1447	4822 276 13114	Tact Switch
1448	4822 276 13114	Tact Switch
1449	4822 276 13114	Tact Switch
1450	4822 276 13114	Tact Switch
1451	4822 276 13114	Tact Switch
1452	4822 276 13114	Tact Switch
1453	4822 276 13114	Tact Switch
1454	4822 276 13114	Tact Switch
1455	4822 276 13114	Tact Switch
1456	4822 276 13114	Tact Switch
1457	4822 276 13114	Tact Switch
1458	4822 276 13114	Tact Switch
1459	4822 276 13114	Tact Switch
1460	4822 276 13114	Tact Switch
1461	4822 276 13114	Tact Switch
1462	4822 276 13114	Tact Switch
1463	4822 276 13114	Tact Switch
1464	4822 276 13114	Tact Switch
1465	4822 276 13114	Tact Switch
1466	4822 276 13114	Tact Switch
1467	4822 276 13114	Tact Switch

CAPACITORS

2400	5322 122 32481	15pF 5% 50V
2401	5322 122 32481	15pF 5% 50V
2402	5322 122 32531	100pF 5% 50V
2403	5322 122 32661	56pF 5% 50V
2404	4822 126 13473	220nF +80/-20% 50V
2405	4822 126 13838	100nF +80/-20% 50V
2406	4822 122 33177	10nF 20% 50V
2407	4822 122 33177	10nF 20% 50V
2408	4822 122 33175	2,2nF 20% 50V
2409	4822 122 33797	47nF 20% 50V
2410	5322 122 32531	100pF 5% 50V
2411	5322 122 32531	100pF 5% 50V
2412	5322 122 32531	100pF 5% 50V
2413	5322 122 32452	47pF 5% 63V
2414	5322 122 32452	47pF 5% 63V
2415	5322 122 32452	47pF 5% 63V
2416	5322 122 32452	47pF 5% 63V
2417	5322 122 32452	47pF 5% 63V
2418	4822 126 14043	1µF +80/-20% 16V
2419	4822 126 14043	1µF +80/-20% 16V
2420	4822 124 40244	2,2µF 20% 63V
2421	4822 124 41584	100µF 20% 10V
2422	5322 116 80853	560pF 5% 63V
2423	4822 124 42234	100µF 20% 6,3V
2424	4822 126 14083	4µ7 +80/-20% 10V
2425	4822 124 42234	100µF 20% 6,3V
2427	4822 122 33515	82pF 5% 63V
2428	5322 122 32452	47pF 5% 63V
2429	4822 126 14083	4µ7 +80/-20% 10V
2430	4822 126 13838	100nF +80/-20% 50V
2431	5322 116 80853	560pF 5% 63V
2432	4822 126 13838	100nF +80/-20% 50V
2433	4822 126 14043	1µF +80/-20% 16V
2435	5322 122 32268	470pF 10% 50V
2436	5322 122 32268	470pF 10% 50V
2437	5322 122 32654	22nF 10% 63V
2438	4822 124 42234	100µF 20% 6,3V
2439	4822 126 14043	1µF +80/-20% 16V
2440	4822 126 14043	1µF +80/-20% 16V
2441	5322 122 32531	100pF 5% 50V
2442	4822 126 14083	4µ7 +80/-20% 10V
2443	4822 126 13838	100nF +80/-20% 50V
2444	4822 126 13838	100nF +80/-20% 50V
2445	4822 126 13838	100nF +80/-20% 50V
2446	4822 124 42234	100µF 20% 6,3V
2447	5322 122 32654	22nF 10% 63V
2448	4822 126 14083	4µ7 +80/-20% 10V
2449	5322 122 32268	470pF 10% 50V
2450	5322 122 32268	470pF 10% 50V
2451	5322 122 32448	10pF 5% 50V
2452	5322 122 32448	10pF 5% 50V
2453	5322 122 32268	470pF 10% 50V
2454	5322 122 32268	470pF 10% 50V
2455	4822 126 14043	1µF +80/-20% 16V
2456	4822 126 14043	1µF +80/-20% 16V
2457	5322 122 32654	22nF 10% 63V
2463	5322 122 32448	10pF 5% 50V
2464	5322 122 32448	10pF 5% 50V
2465	5322 122 32448	10pF 5% 50V
2466	5322 122 32448	10pF 5% 50V
2467	5322 122 32448	10pF 5% 50V
2468	5322 122 32448	10pF 5% 50V
2469	5322 122 32448	10pF 5% 50V
2476	4822 122 32535	680pF 10% 63V
2477	4822 124 42234	100µF 20% 6,3V
2478	4822 126 13473	220nF +80/-20% 50V
2479	4822 126 13473	220nF +80/-20% 50V
2480	4822 126 13473	220nF +80/-20% 50V
2481	4822 126 13473	220nF +80/-20% 50V
2482	5322 122 32448	10pF 5% 50V
2483	5322 122 32448	10pF 5% 50V
2486	5322 122 32661	56pF 5% 50V
2487	5322 122 32661	56pF 5% 50V
2488	5322 122 32661	56pF 5% 50V

ELECTRICAL PARTS LIST - FRONT BOARD (HVC version)

RESISTORS

3635	4822 051 20101	100E 5% 0,1W
3636	4822 051 20101	100E 5% 0,1W
3637	4822 051 20101	100E 5% 0,1W
3638	4822 051 20101	100E 5% 0,1W
3639	4822 051 20101	100E 5% 0,1W
3640	4822 051 10102	1k 2% 0,25W
3641	4822 051 10102	1k 2% 0,25W
3642	4822 051 10102	1k 2% 0,25W
3644	4822 051 10102	1k 2% 0,25W
3646	4822 051 10102	1k 2% 0,25W
3648	4822 051 10102	1k 2% 0,25W
3649	4822 051 20228	2E2 5% 0,1W
3650	4822 051 10102	1k 2% 0,25W
3651	4822 051 10102	1k 2% 0,25W
3652	4822 051 10102	1k 2% 0,25W
4404	4822 051 20008	Chip Jumper 0805
4407	4822 051 20008	Chip Jumper 0805
4408	4822 051 20008	Chip Jumper 0805
4409	4822 051 20008	Chip Jumper 0805
4450	4822 051 20008	Chip Jumper 0805
4451	4822 051 20008	Chip Jumper 0805
4452	4822 051 20008	Chip Jumper 0805
4453	4822 051 20008	Chip Jumper 0805
4454	4822 051 20008	Chip Jumper 0805
4455	4822 051 20008	Chip Jumper 0805
4456	4822 051 20008	Chip Jumper 0805
4457	4822 051 20008	Chip Jumper 0805
4458	4822 051 20008	Chip Jumper 0805
4459	4822 051 10008	Chip Jumper 1206
4460	4822 051 20008	Chip Jumper 0805
4461	4822 051 10008	Chip Jumper 1206
4462	4822 051 10008	Chip Jumper 1206
4463	4822 051 20008	Chip Jumper 0805
4464	4822 051 10008	Chip Jumper 1206
4465	4822 051 10008	Chip Jumper 1206
4466	4822 051 10008	Chip Jumper 1206
4467	4822 051 10008	Chip Jumper 1206
4468	4822 051 20008	Chip Jumper 0805
4469	4822 051 10008	Chip Jumper 1206
4470	4822 051 10008	Chip Jumper 1206
4471	4822 051 20008	Chip Jumper 0805
4472	4822 051 10008	Chip Jumper 1206
4473	4822 051 10008	Chip Jumper 1206
4474	4822 051 10008	Chip Jumper 1206
4475	4822 051 10008	Chip Jumper 1206
4476	4822 051 10008	Chip Jumper 1206
4477	4822 051 20008	Chip Jumper 0805
4478	4822 051 10008	Chip Jumper 1206
4479	4822 051 20008	Chip Jumper 0805
4482	4822 051 10008	Chip Jumper 1206
4483	4822 051 10008	Chip Jumper 1206
4484	4822 051 10008	Chip Jumper 1206
4485	4822 051 10008	Chip Jumper 1206
4486	4822 051 20008	Chip Jumper 0805
4487	4822 051 20008	Chip Jumper 0805
4488	4822 051 20008	Chip Jumper 0805
4489	4822 051 20008	Chip Jumper 0805
4490	4822 051 10008	Chip Jumper 1206
4491	4822 051 10008	Chip Jumper 1206
4492	4822 051 10008	Chip Jumper 1206
4494	4822 051 10008	Chip Jumper 1206
4495	4822 051 20008	Chip Jumper 0805
4496	4822 051 10008	Chip Jumper 1206
4497	4822 051 20008	Chip Jumper 0805
4498	4822 051 20008	Chip Jumper 0805
4500	4822 051 10008	Chip Jumper 1206
4501	4822 051 10008	Chip Jumper 1206
4502	4822 051 10008	Chip Jumper 1206
4503	4822 051 10008	Chip Jumper 1206
4504	4822 051 10008	Chip Jumper 1206
4505	4822 051 10008	Chip Jumper 1206
4506	4822 051 10008	Chip Jumper 1206
4507	4822 051 20008	Chip Jumper 0805
4508	4822 051 10008	Chip Jumper 1206
4509	4822 051 10008	Chip Jumper 1206
4510	4822 051 10008	Chip Jumper 1206
4511	4822 051 10008	Chip Jumper 1206
4512	4822 051 10008	Chip Jumper 1206
4513	4822 051 10008	Chip Jumper 1206
4515	4822 051 10008	Chip Jumper 1206
4516	4822 051 10008	Chip Jumper 1206
4517	4822 051 10008	Chip Jumper 1206
4518	4822 051 10008	Chip Jumper 1206
4521	4822 051 20008	Chip Jumper 0805
4522	4822 051 10008	Chip Jumper 1206
4523	4822 051 10008	Chip Jumper 1206
4524	4822 051 20008	Chip Jumper 0805
4525	4822 051 20008	Chip Jumper 0805
4526	4822 051 10008	Chip Jumper 1206
4527	4822 051 10008	Chip Jumper 1206
4528	4822 051 10008	Chip Jumper 1206
4530	4822 051 10008	Chip Jumper 1206
4532	4822 051 20008	Chip Jumper 0805
4535	4822 051 20008	Chip Jumper 0805
4545	4822 051 20008	Chip Jumper 0805
4554	4822 051 20008	Chip Jumper 0805
4559	4822 051 10008	Chip Jumper 1206
4560	4822 051 10008	Chip Jumper 1206
4562	4822 051 10008	Chip Jumper 1206
4563	4822 051 10008	Chip Jumper 1206
4564	4822 051 10008	Chip Jumper 1206
4565	4822 051 10008	Chip Jumper 1206
4566	4822 051 20008	Chip Jumper 0805
4567	4822 051 10008	Chip Jumper 1206
4568	4822 051 10008	Chip Jumper 1206
4569	4822 051 10008	Chip Jumper 1206
4570	4822 051 10008	Chip Jumper 1206
4571	4822 051 10008	Chip Jumper 1206
4572	4822 051 10008	Chip Jumper 1206
4573	4822 051 10008	Chip Jumper 1206
4574	4822 051 10008	Chip Jumper 1206
4575	4822 051 10008	Chip Jumper 1206
4576	4822 051 10008	Chip Jumper 1206
4577	4822 051 20008	Chip Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD (HVC version)

RESISTORS

4578	4822 051 10008	Chip Jumper 1206
4579	4822 051 10008	Chip Jumper 1206
4580	4822 051 20008	Chip Jumper 0805
4581	4822 051 20008	Chip Jumper 0805
4582	4822 051 10008	Chip Jumper 1206
4583	4822 051 10008	Chip Jumper 1206
4584	4822 051 20008	Chip Jumper 0805
4585	4822 051 10008	Chip Jumper 1206
4586	4822 051 20008	Chip Jumper 0805
4587	4822 051 10008	Chip Jumper 1206
4590	4822 051 20008	Chip Jumper 0805
4591	4822 051 10008	Chip Jumper 1206
4597	4822 051 10008	Chip Jumper 1206

COILS & FILTERS

5400	4822 242 70938	X'tal Resonator 32,768kHz
5401	4822 242 72066	Ceram Resonator 8MHz
5402	4822 242 72195	Quartz 4,332MHz
5403	4822 156 21721	2,2µH 10%
5404	4822 156 21721	2,2µH 10%
5405	4822 157 52983	22µH 10%
5406	4822 157 52983	22µH 10%
5407	4822 157 52983	22µH 10%
5408	4822 157 52983	22µH 10%

DIODES

6400	4822 130 31983	BAT85
6401	5322 130 30684	1N4002
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 10773	TSIP5201-BT12Z
6405	4822 130 30621	1N4148
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 10791	LTL-1CHGE
6409	4822 130 10791	LTL-1CHGE
6410	4822 130 10791	LTL-1CHGE
6411	4822 130 10791	LTL-1CHGE
6412	4822 130 30621	1N4148
6421	4822 130 30621	1N4148
6422	4822 130 30621	1N4148
6423	4822 130 30621	1N4148
6425	4822 130 10791	LTL-1CHGE
6426	4822 130 10792	LTL-1CHPE
6427	4822 130 10774	LTL-293SJ
6428	4822 130 10774	LTL-293SJ
6429	4822 130 10774	LTL-293SJ
6430	4822 130 10774	LTL-293SJ
6431	4822 130 10774	LTL-293SJ
6432	4822 130 10774	LTL-293SJ
6433	4822 130 10774	LTL-293SJ
6434	4822 130 30621	1N4148
6435	4822 130 30621	1N4148
6436	4822 130 30621	1N4148
6437	4822 130 30621	1N4148
6438	4822 130 30621	1N4148
6439	4822 130 30621	1N4148
6440	4822 130 30621	1N4148
6441	4822 130 30621	1N4148
6442	4822 130 30621	1N4148
6443	4822 130 30621	1N4148
6444	4822 130 30621	1N4148
6446	4822 130 30621	1N4148
6447	4822 130 30621	1N4148
6448	4822 130 30621	1N4148
6449	4822 130 30621	1N4148
6450	4822 130 34173	BZX79-C5V6
6451	4822 130 34173	BZX79-C5V6
6452	4822 130 34173	BZX79-C5V6
6453	4822 130 30621	1N4148
6454	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

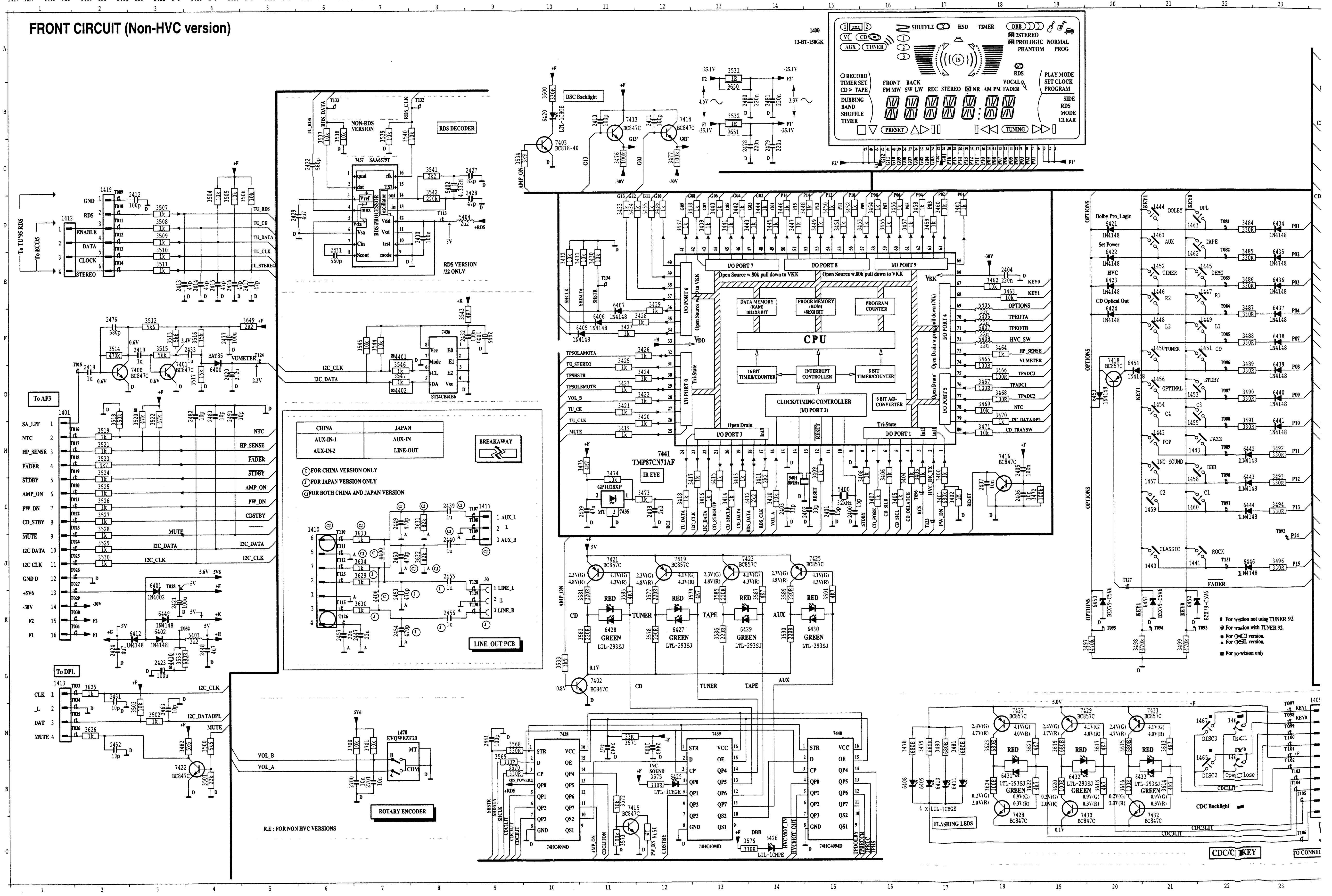
7400	5322 130 42755	BC847C
7401	5322 130 42755	BC847C
7402	5322 130 42755	BC847C
7408	5322 130 42755	BC847C
7409	5322 130 42755	BC847C
7410	5322 130 42755	BC847C
7411	5322 130 42755	BC847C
7412	5322 130 42755	BC847C
7413	5322 130 42755	BC847C
7414	5322 130 42755	BC847C
7415	5322 130 42755	BC847C
7416	5322 130 42755	BC847C
7417	5322 130 42755	BC847C
7418	5322 130 42756	BC857C
7419	5322 130 42756	BC857C
7421	5322 130 42756	BC857C
7422	5322 130 42755	BC847C
7423	5322 130 42756	BC857C
7425	5322 130 42756	BC857C
7427	5322 130 42756	BC857C
7428	5322 130 42755	BC847C
7429	5322 130 42756	BC857C
7430	5322 130 42755	BC847C
7431	5322 130 42756	BC857C
7432	5322 130 42755	BC847C
7433	5322 130 42755	BC847C
7434	5322 130 42755	BC847C
7435	4822 130 10165	GP1U28XP
7436	4822 209 31508	ST24C01B6
7437	4822 209 31981	SAA6579T/V1
7438	4822 209 15449	74HC4094D
7439	4822 209 15449	74HC4094D
7440	4822 209 15449	74HC4094D
7441	4822 209 15475	TMP87CS71AF - 770S51491
7445	5322 130 42755	BC847C

NOTE: Only the parts mentioned in this list are normal service spare parts.

FRONT CIRCUIT

1400	A15
1401	G 1
1403	E27
1404	H28
1405	M23
1410	I 6
1411	I 9
1412	D 2
1413	L 1
1416	M28
1417	M27
1418	N 1
1419	C 2
1440	J21
1441	J21
1442	H21
1443	H21
1444	D21
1445	E22
1446	E21
1447	E22
1448	F21
1449	F22
1450	F21
1451	F22
1452	E21
1453	G21
1454	G21
1455	H21
1456	G21
1457	I21
1458	I21
1459	I21
1460	I21
1461	D21
1462	E21
1463	D21
1464	N22
1465	N22
1466	M22
1467	M22
1470	M 7
2400	I15
2401	I15
2402	I15
2403	I14
2404	E18
2405	H18
2406	I18
2407	I18
2408	I12
2409	I11
2410	B11
2411	B12
2412	D 3
2413	E 3
2414	E 4
2415	E 4
2416	E 4
2417	E 5
2418	F 2
2419	F 3
2420	G 4
2421	K 3
2422	C 6
2423	L 3
2424	L 2
2425	G26
2427	C 9
2428	D 9
2429	D 5
2430	D 8
2431	E 6
2432	F 8
2433	F 4
2439	I 8
2440	J 8
2441	M 9
2442	M11
2443	M12
2444	A25
2445	B26
2446	F 9
2447	K 6
2448	L 4
2449	I 7
2450	J 7
2451	L 2
2452	M 2
2453	K 7
2454	K 7
2455	J 8
2456	K 8
2457	K 6
2458	N 2
2459	N 3
2460	O 2
2461	O 3
2462	O 3
2463	M 3
2464	M25
2465	M25
2466	M26
2467	O25
2468	O25
2469	O26
2470	K24
2471	K25
2472	K25
2473	K25
2474	K26
2475	K26
2476	F 2
2477	F 4
2478	C13
2479	C14
2480	B13
2481	B14
2482	G 4
2483	G 4
2486	D24
2487	D25
2488	D25
2489	D25
2490	D24
2491	G 4
25	A26
2700	N 6
2701	N 7
30	J 9
3400	I17
3401	I17
3402	I17
3403	I17
3404	I16
3405	I16
3406	I16
3407	I16
3408	I16
3409	H15
3410	I14
3411	I14
3412	I14
3413	I13
3414	I13
3415	I13
3416	I13
3417	I13
3418	I12
3419	H11
3420	G12
3421	G11
3422	G12
3423	G11
3424	G12
3425	F11
3426	F12
3427	F11
3428	F12
3429	E12
3430	E11
3431	E11
3432	E10
3433	D11
3434	D11
3435	D12
3436	D12
3437	D12
3438	D13
3439	D13
3440	D13
3441	D13
3442	D13
3443	D14
3444	D14
3445	D14
3446	D14
3447	D14
3448	D15
3449	D15
3450	D15
3451	D15
3452	D15
3453	D16
3454	D16
3455	D16
3456	D16
3457	D16
3458	D17
3459	D17
3460	D17
3461	D17
3462	E18
3463	E18
3464	F18
3465	F18
3466	G18
3467	G18
3468	G18
3469	G18
3470	G18
3471	H18
3472	I19
3473	I12
3474	H11
3475	H11
3476	C11
3477	C12
3478	M16
3479	M16
3480	M17
3481	M17
3482	M 3
3483	G26
3484	D22
3485	E22
3486	E22
3487	F22
3488	F22
3489	G22
3490	G22
3491	H22
3492	H23
3493	I23
3494	I23
3496	J23
3497	L20
3498	L20
3499	L21
3500	M 4
3501	N 4
3502	M 3
3503	M 3
3504	D 4
3505	D 4
3506	D 4
3507	D 3
3508	D 3
3509	D 3
3510	D 3
3511	E 3
3512	F 3
3513	F 3
3514	F 2
3515	F 3
3516	F 4
3517	G 4
3518	G 2
3519	H 2
3520	G 3
3521	H 2
3522	G 3
3523	H 2
3524	H 2
3525	I 2
3526	I 2
3527	I 2
3528	I 2
3529	J 2
3530	J 2
3531	A13
3532	B13
3533	L10
3534	C 9
3535	F24
3536	L 3
3537	B 6
3538	B 6
3539	B 7
3540	B 7
3541	C 8
3542	C 8
3543	F 8
3544	F 7
3545	F 7
3546	G 7
3547	G 7
3568	M 9
3569	N 9
3570	N 9
3571	M11
3572	N11
3573	O11
3574	O12
3575	N12
3576	O14
3577	K12
3578	K12
3579	K13
3581	K11
3582	K11
3583	K11
3585	K13
3586	K13
3587	K14
3589	K14
3590	K14
3591	K15
3600	B10
3601	C25
3602	E27
3603	E26
3604	H26
3605	H26
3606	I26
3607	H25
3608	H25
3609	I25
3610	M27
3611	M26
3612	N27
3613	M21
3614	N21
3615	M20
3616	N20
3617	M20
3618	N20
3619	M19
3620	N19
3621	M19
3622	N19
3623	M18
3624	N18
3625	L 2
3626	M 2
3627	D26
3628	C26
3629	J 7
3630	K 7
3631	I 8
3632	J 8
3633	J 7
3634	J 7
3635	N 2
3636	O 2
3637	O 2
3638	O 2
3639	O 2
3640	N26
3641	N27
3642	N26
3643	I27
3644	I27
3645	J26
3646	J27
3647	J26
3648	J27
3649	F 5
3650	C26
3651	B26
3652	B26
3700	M 6
3701	M 7
4400	J 7
4401	F 7
4402	G 7
4404	A26
4405	B26
4406	K 7
4407	I27
4408	J26
4409	J26
4410	L 3
5400	I15
5401	I14
5402	C 8
5403	K 4
5404	D 8
5405	F18
5406	F18
5407	F18
5408	F18
6400	G 4
6401	J 3
6402	K 3
6405	F11
6406	F11
6407	F11
6408	N16
6409	N16
6410	N17
6411	N17
6412	K 3
6420	B10
6421	D20
6422	E2
6423	E2
6424	F2
6425	N1
6426	O1
6427	K1
6428	K1
6429	K1
6430	K1
6431	N1
6432	N1

FRONT CIRCUIT (Non-HVC version)

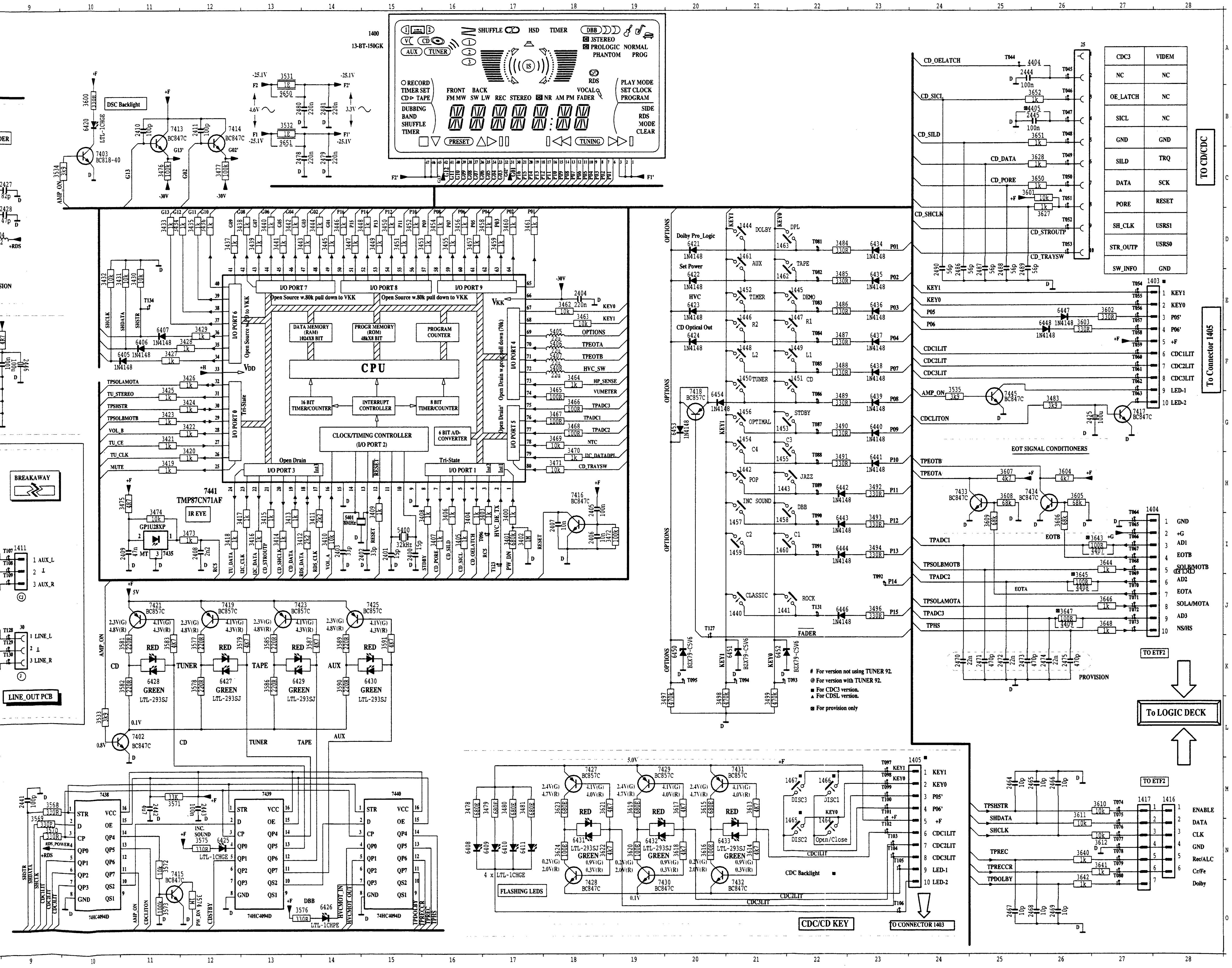


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
A B C D E F G H I J K L M N O
1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC NORMAL
PHANTOM PROG
AUX
TUNER
CD
ORECORD
TIMER SET
CD TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT BACK
FM MW SW LW REC STEREO NR AM PM FADER
VOCAL
RDS
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
F2'
F1'
3531
1E
3650
3532
3651
2480
220n
2481
2478
2479
-25.1V
4.6V
3.3V
F2
F1
DSC Backlight
3600
6420
LTL-1CHGE
7403
BC818-40
7413
BC847C
7414
2410
2411
100p
3476
100R
3477
100R
-30V
G13
G02
AMP_ON
3534
RDS DECODER
NON-RDS VERSION
T133
T132
RDS_DATA
RDS_CLK
TU_RDS
3537
3538
3539
3540
10K
7437
SAA6579T
2422
560p
qual
dat
Vref
mux
Vdda
Vssa
Cin
Scout
clk
TST
out
in
Vdd
Vsd
test
mode
RDS PROCESSOR
oscillator
3541
2K2
2427
82p
5402
4.332M
3542
220K
2428
47p
T113
5404
2u2
+RDS
2429
4u7
2430
100n
2431
560p
5V
RDS VERSION /22 ONLY
1412
1419
To TU'95 RDS
To ECO5
GND
RDS
ENABLE
DATA
CLOCK
STEREO
2412
100p
3507
3508
3509
3510
3511
1k
TU_RDS
TU_CE
TU_DATA
TU_CLK
TU_STEREO
3504
3505
3506
10K
2413
2414
2415
2416
2417
47p
2476
680p
3512
5K6
3649
2R2
2477
100u
3514
470K
2419
3515
56K
2433
7400
BC847C
7401
BC847C
2418
1u
BAT85
6400
VUMETER
T124
2420
2u2
2.2V
0.6V
I2C_CLK
I2C_DATA
7436
ST24C8B1B6
Vcc
Mode
SCL
SDA
Vss
E0
E1
E2
3545
3544
3546
3547
4401
4402
3543
4K7
2446
To AF3
1401
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
3519
3521
3523
3524
3525
3526
3527
3528
3529
3530
3518
3520
3522
47K
2482
2483
2491
10p
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CDSTBY
MUTE
I2C_DATA
I2C_CLK
6401
1N4002
T028
5.6V
5V6
2421
6449
1N4148
6412
6402
5403
2u2
3536
680R
4410
2423
100u
+G
+K
+H
To DPL
1413
CLK
DAT
MUTE 4
3625
2451
10p
3503
3502
3626
2452
I2C_CLK
I2C_DATAPDL
MUTE
3482
3K6
3500
7422
BC847C
3501
22K
CHINA
JAPAN
AUX-IN-1
AUX-IN-2
AUX-IN
LINE-OUT
FOR CHINA VERSION ONLY
FOR JAPAN VERSION ONLY
FOR BOTH CHINA AND JAPAN VERSION
BREAKAWAY
1410
1411
1 AUX_L
2
3 AUX_R
3633
3634
3629
3630
2449
2450
2453
2454
2455
2456
2457
2439
2440
3631
3632
82K
4400
LINE_L
LINE_R
LINE_OUT PCB
5V6
1470
EVQWEZF20
MT
COM
3700
3701
2700
2701
VOL_B
VOL_A
ROTARY ENCODER
R.E : FOR NON HVC VERSIONS
7441
TMP87CN71AF
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 3
I/O PORT 1
I/O PORT 4
I/O PORT 5
Open Source w.80k pull down to VKK
VKK
VDD
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Drain
Tri-State
TPSOLAMOTA
TU_STEREO
TPSHSTR
TPSOLBMOTB
VOL_B
TU_CE
TU_CLK
MUTE
SHCLK
SHDATA
SHSTR
T134
6405
6406
6407
1N4148
KEY0
KEY1
OPTIONS
TPEOTA
TPEOTB
HVC_SW
HP_SENSE
VUMETER
TPADC3
TPADC1
TPADC2
NTC
I2C_DATADPL
CD_TRAYSW
3462
3463
3464
3465
3466
3467
3468
3469
3470
3471
2404
220n
IR EYE
GP1U28XP
3474
3475
4K7
3473
2408
2n2
7435
5401
8MHz
5400
32KHz
7416
BC847C
2405
2406
3472
TU_DATA
I2C_CLK
CD_STROUTP
CD_CLK
CD_DATA
RDS_DATA
RDS_CLK
VOL_A
CD_SILD
CD_SCL
CD_DEMO
RESET
PW_DN
HVC_DE_TX
7421
7419
7423
7425
BC857C
2.3V(G)
4.8V(R)
4.1V(G)
4.3V(R)
RED
GREEN
CD
TUNER
TAPE
AUX
6428
6427
6429
6430
LTL-293SJ
3581
3582
3578
3577
3579
3585
3586
3587
3589
3590
220R
7402
BC847C
3533
0.1V
0.8V
7438
7439
7440
74HC4094D
STR
VCC
OE
QP4
QP5
QP6
QP7
QS2
QS1
GND
CP
QP0
QP1
QP2
QP3
2441
100p
3568
3569
3570
3571
33K
3573
3575
330R
6425
LTL-1CHGE
7415
BC847C
3572
3574
6426
LTL-1CHPE
3576
INC. SOUND
DBB
RDS_POWER
+RDS
SHSTR
SHDATA
SHCLK
CDCILIT
CDCLIT
AMP_ON
CDCLITON
PW_DN
CDSTBY
HVCMOT_OUT
HVCMOT_IN
TPEOCRY
TPEOCRX
TPHS
Dolby Pro_Logic
6421
1N4148
Set Power
6422
HVC
6423
CD Optical Out
6424
1444
DOLBY
1461
AUX
1452
TIMER
1446
R2
1448
L2
1450
TUNER
1456
OPTIMAL
1454
C4
1442
POP
INC SOUND
C2
CLASSIC
1440
1441
ROCK
DPL
1463
TAPE
1462
1445
DEMO
1447
R1
1449
L1
1451
CD
STDBY
1453
C3
1455
JAZZ
1443
DBB
1458
1457
C1
1460
1459
T081
3484
3485
3486
3487
3488
3489
3490
3491
3492
3493
3494
3496
330R
6434
6435
6436
6437
6438
6439
6440
6441
6442
6443
6444
6446
P01
P02
P03
P04
P07
P08
P09
P10
P11
P12
P13
P14
P15
7418
BC857C
6454
6453
FADER
T127
6450
6451
6452
BZX79-C5V6
3497
3498
3499
470K
T095
T094
T093
# For version not using TUNER 92.
@ For version with TUNER 92.
For CD version.
For CDL version.
For version only
7427
7429
7431
BC857C
2.4V(G)
4.7V(R)
4.1V(G)
4.0V(R)
6431
6432
6433
LTL-293SJ
7428
7430
7432
BC847C
0.2V(G)
2.0V(R)
0.9V(G)
0.3V(R)
3623
3624
3619
3620
3615
3616
3621
3622
3617
3618
3613
3614
3478
3479
3480
3481
680R
6408
6409
6410
6411
4 x LTL-1CHGE
FLASHING LEDS
1467
DISC3
1465
DISC2
Open
Close
CDC Backlight
CDC/CD KEY
TO CONNEC
KEY1
KEY0
CDC1LIT
CDC2LIT
CDC3LIT
5.0V

	I17	3413	I13	3424	G12	3435	D12	3446	D14	3457	D16	3468	G18	3479	M16	3490	G22	3502	M 3	3513	F 3
	I17	3414	I13	3425	F11	3436	D12	3447	D14	3458	D17	3469	G18	3480	M17	3491	H22	3503	M 3	3514	F 2
	I16	3415	I13	3426	F12	3437	D12	3448	D15	3459	D17	3470	G18	3481	M17	3492	H23	3504	D 4	3515	F 3
	I16	3416	I13	3427	F11	3438	D13	3449	D15	3460	D17	3471	H18	3482	M 3	3493	I23	3505	D 4	3516	F 4
	I16	3417	I13	3428	F12	3439	D13	3450	D15	3461	D17	3472	I19	3483	G26	3494	I23	3506	D 4	3517	G 4
	I16	3418	I12	3429	E12	3440	D13	3451	D15	3462	E18	3473	I12	3484	D22	3496	J23	3507	D 3	3518	G 2
	I16	3419	H11	3430	E11	3441	D13	3452	D15	3463	E18	3474	H11	3485	E22	3497	L20	3508	D 3	3519	H 2
	H15	3420	G12	3431	E11	3442	D13	3453	D16	3464	F18	3475	H11	3486	E22	3498	L20	3509	D 3	3520	G 3
	I14	3421	G11	3432	E10	3443	D14	3454	D16	3465	F18	3476	C11	3487	F22	3499	L21	3510	D 3	3521	H 2
	I14	3422	G12	3433	D11	3444	D14	3455	D16	3466	G18	3477	C12	3488	F22	3500	M 4	3511	E 3	3522	G 3
	I14	3423	G11	3434	D11	3445	D14	3456	D16	3467	G18	3478	M16	3489	G22	3501	N 4	3512	F 3	3523	H 2

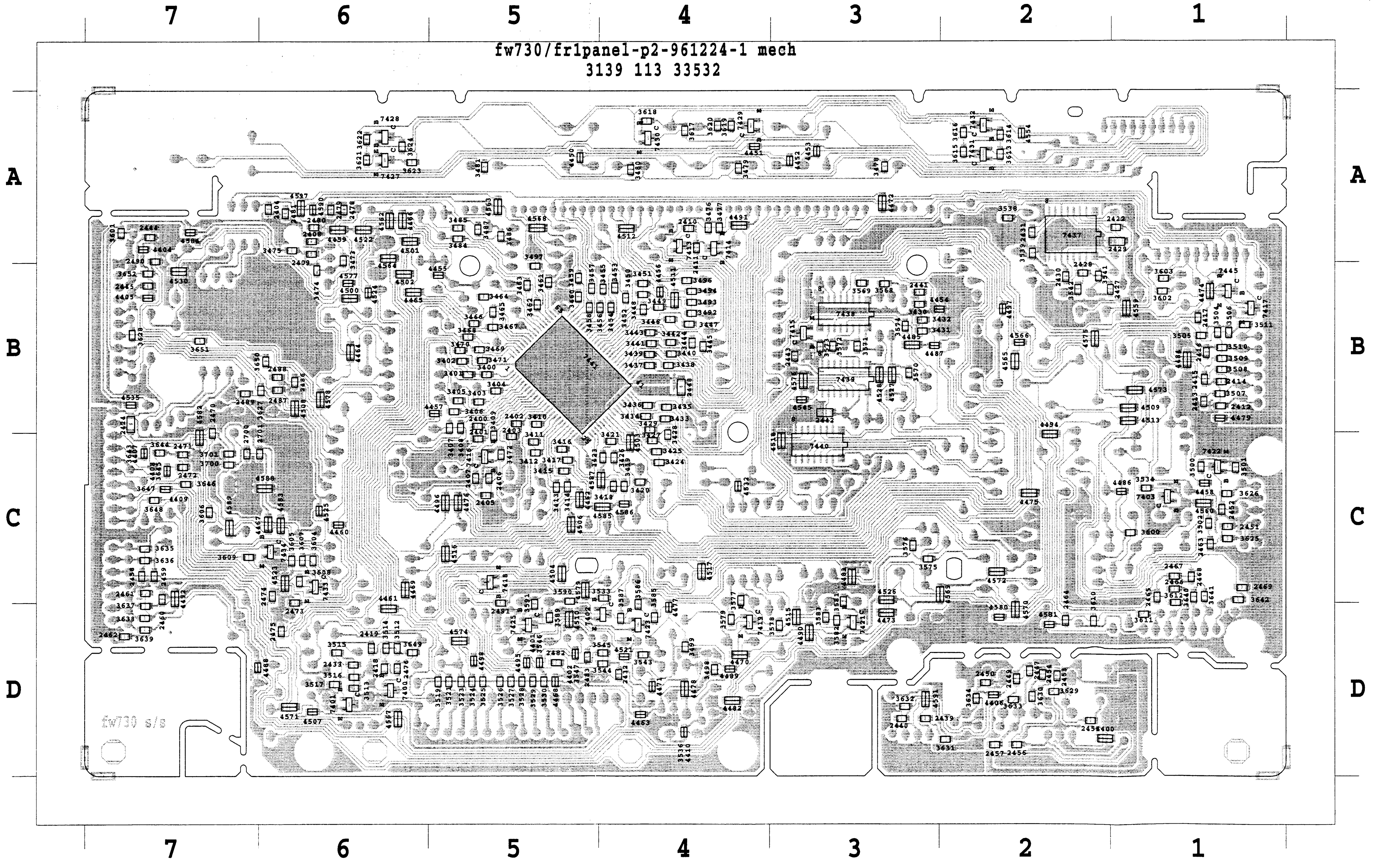
3524	H 2	3535	F24	3546	G 7	3577	K12	3591	K15	3610	M27	3621	M19	3632	J 8	3643	I27	3701	M 7
3525	I 2	3536	L 3	3547	G 7	3578	K12	3600	B10	3611	M26	3622	N19	3633	J 7	3644	I27	4400	J 7
3526	I 2	3537	B 6	3568	M 9	3579	K13	3601	C25	3612	N27	3623	M18	3634	J 7	3645	J26	4401	F 7
3527	I 2	3538	B 6	3569	N 9	3581	K11	3602	E27	3613	M21	3624	N18	3635	N 2	3646	J27	4402	G 7
3528	I 2	3539	B 7	3570	N 9	3582	K11	3603	E26	3614	N21	3625	L 2	3636	O 2	3647	J26	4404	A26
3529	J 2	3540	B 7	3571	M11	3583	K11	3604	H26	3615	M20	3626	M 2	3637	O 2	3648	J27	4405	B26
3530	J 2	3541	C 8	3572	N11	3585	K13	3605	H26	3616	N20	3627	D26	3638	O 2	3649	F 5	4406	K 7
3531	A13	3542	C 8	3573	O11	3586	K13	3606	I26	3617	M20	3628	C26	3639	O 2	3650	C26	4407	I27
3532	B13	3543	F 8	3574	O12	3587	K14	3607	H25	3618	N20	3629	J 7	3640	N26	3651	B26	4408	J26
3533	L10	3544	F 7	3575	N12	3589	K14	3608	H25	3619	M19	3630	K 7	3641	N27	3652	B26	4409	J26
3534	C 9	3545	F 7	3576	O14	3590	K14	3609	I25	3620	N19	3631	I 8	3642	N26	3700	M 6	4410	L 3

5400	I15	6402	K 3	6422	E20	6433	N21	6444	I22	7401	G 3	7422	N 4	7435	I11
5401	I14	6405	F11	6423	E20	6434	D23	6446	J22	7402	L11	7423	J14	7436	F 8
5402	C 8	6406	F11	6424	F20	6435	E23	6447	E26	7403	C10	7425	J15	7437	C 7
5403	K 4	6407	F11	6425	N12	6436	E23	6448	E26	7413	B11	7427	M18	7438	M10
5404	D 8	6408	N16	6426	O14	6437	F23	6449	K 3	7414	B12	7428	O18	7439	M13
5405	F18	6409	N16	6427	K12	6438	F23	6450	K20	7415	N11	7429	M20	7440	M15
5406	F18	6410	N17	6428	K11	6439	G23	6451	K20	7416	H18	7430	O20	7441	H12
5407	F18	6411	N17	6429	K13	6440	G23	6452	K21	7417	G27	7431	M21	7445	G25
5408	F18	6412	K 3	6430	K15	6441	H23	6453	G20	7418	F20	7432	O21	9650	B13
6400	G 4	6420	B10	6431	N18	6442	H22	6454	G20	7419	J12	7433	H24	9651	B13
6401	J 3	6421	D20	6432	N19	6443	I22	7400	G 3	7421	J11	7434	H26		

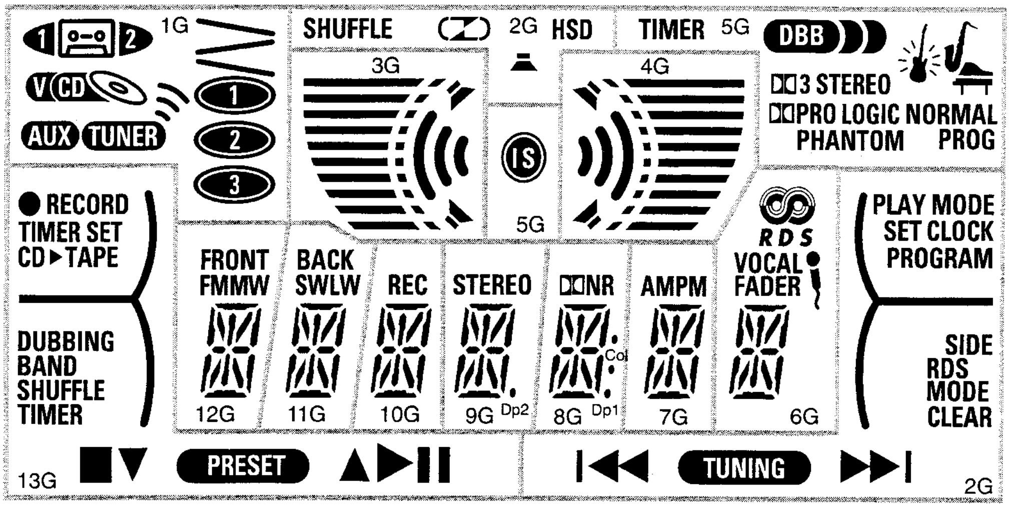

9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
AUX
TUNER
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
FADER
VOCAL
RDS
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
AMP_ON
7441
TMP87CN71AF
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 4
I/O PORT 5
I/O PORT 3
I/O PORT 1
Open Source w.80k pull down to VKK
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Drain
Tri-State
VKK
VDD
IR EYE
GP1U28XP
BREAKAWAY
1 AUX_L
3 AUX_R
1 LINE_L
3 LINE_R
LINE_OUT PCB
OPTIONS
KEY1
KEY0
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
OPTIMAL
STDBY
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
# For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC3 version.
▲ For CDSL version.
■ For provision only
CD_OELATCH
CD_SICL
CD_SILD
CD_DATA
CD_PORE
CD_SHCLK
CD_STROUTP
CD_TRAYSW
CDC3
VIDEM
NC
OE_LATCH
SICL
GND
SILD
TRQ
DATA
SCK
PORE
RESET
SH_CLK
USRS1
STR_OUTP
USRS0
SW_INFO
TO CD/CDC
1 KEY1
2 KEY0
3 P05'
4 P06'
5 +F
6 CDC1LIT
7 CDC2LIT
8 CDC3LIT
9 LED-1
10 LED-2
To Connector 1405
EOT SIGNAL CONDITIONERS
TPEOTB
TPEOTA
1 GND
2 +G
3 AD1
4 EOTB
5 SOLB/MOTB
6 AD2
7 EOTA
8 SOLA/MOTA
9 AD3
10 NS/HS
TO ETF2
PROVISION
To LOGIC DECK
1 ENABLE
2 DATA
3 CLK
4 GND
5 Rec/ALC
6 Cr/Fe
Dolby
RED
GREEN
LTL-293SJ
CD
TUNER
TAPE
AUX
74HC4094D
FLASHING LEDS
4 x LTL-1CHGE
DISC3
DISC2
JISC1
Open/Close
CDC Backlight
CDC/CD KEY
TO CONNECTOR 1403
1405

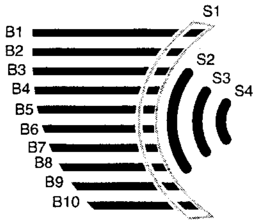
CHIP LAYOUT

2400 B 5	2428 B 2	2457 D 2	2481 A 6	3412 C 5	3436 B 4	3459 B 5	3484 A 5	3513 D 6	3544 D 4	3590 C 5	3621 A 6	3644 C 7	4452 A 3	4475 C 2	4502 B 6	4530 B 7	4578 B 6	7417 B 1
2401 C 5	2429 A 1	2458 C 7	2482 D 5	3413 C 5	3437 B 4	3460 B 5	3485 A 5	3514 D 6	3545 D 4	3591 D 5	3622 A 6	3645 C 7	4453 A 3	4476 C 5	4503 C 4	4532 C 4	4579 C 5	7418 C 5
2402 B 5	2430 B 2	2459 C 7	2483 D 5	3414 C 5	3438 B 4	3461 B 5	3486 A 5	3515 D 6	3546 D 5	3600 C 1	3623 A 6	3646 C 7	4454 B 3	4477 D 4	4504 C 5	4535 B 7	4580 D 2	7419 D 4
2403 C 5	2431 A 2	2460 C 7	2486 B 6	3415 C 5	3439 B 4	3462 B 5	3487 A 5	3516 D 6	3547 D 5	3601 A 7	3624 A 6	3647 C 7	4455 B 5	4478 D 4	4506 C 5	4545 B 3	4581 D 2	7421 D 3
2404 A 6	2432 D 4	2461 C 7	2487 B 6	3416 C 5	3440 B 4	3463 B 5	3492 B 4	3517 D 6	3568 B 3	3602 B 1	3625 C 1	3648 C 7	4456 B 4	4479 B 1	4507 D 6	4554 A 2	4582 C 7	7422 C 1
2405 C 5	2433 D 6	2462 D 7	2488 B 6	3417 C 5	3441 B 4	3464 B 5	3493 B 4	3519 D 5	3569 B 3	3603 B 1	3626 C 1	3649 D 6	4457 B 5	4482 D 4	4508 B 6	4559 B 1	4583 C 6	7423 D 4
2406 C 5	2439 D 3	2463 C 1	2489 B 7	3418 C 4	3442 B 4	3465 B 5	3494 B 4	3521 D 5	3570 B 3	3604 C 6	3627 B 6	3650 B 6	4458 C 1	4483 C 3	4509 B 1	4560 C 1	4584 A 7	7425 D 5
2407 C 5	2440 D 3	2464 D 2	2490 A 7	3419 C 4	3443 B 4	3466 B 5	3496 B 4	3523 D 5	3571 B 3	3605 C 6	3628 B 7	3651 B 7	4459 A 6	4484 B 1	4510 D 5	4562 A 6	4585 C 4	7427 A 6
2408 A 6	2441 B 3	2465 C 1	2491 D 5	3420 C 4	3444 B 4	3467 B 5	3497 B 5	3524 D 5	3572 B 3	3606 C 7	3629 D 2	3652 B 7	4460 C 6	4485 B 3	4511 B 4	4563 A 5	4586 C 4	7428 A 6
2409 A 6	2442 B 3	2466 C 1	2700 C 7	3421 C 4	3445 B 4	3468 B 5	3498 D 4	3525 D 5	3573 B 3	3607 C 6	3630 D 2	3700 C 7	4461 D 6	4486 C 1	4512 A 4	4564 A 6	4587 C 4	7429 A 4
2410 A 4	2443 B 3	2467 C 1	2701 C 6	3423 C 4	3446 B 4	3469 B 5	3499 D 4	3526 D 5	3574 B 3	3608 C 6	3631 D 2	3701 C 7	4462 C 5	4487 B 3	4513 B 1	4565 B 2	4588 C 6	7430 A 4
2411 A 4	2444 A 7	2468 C 1	3400 B 5	3424 C 4	3447 B 4	3470 B 5	3500 C 1	3527 D 5	3575 C 3	3609 C 7	3632 D 3	4400 D 2	4463 D 4	4488 D 7	4515 D 3	4566 B 2	4589 C 7	7431 A 2
2412 B 1	2445 B 7	2469 C 1	3401 B 5	3425 C 4	3448 B 4	3471 B 5	3501 C 1	3528 D 5	3576 C 3	3610 D 2	3633 D 2	4401 D 5	4464 B 6	4489 D 4	4516 C 5	4567 D 6	4590 A 6	7432 A 2
2413 B 1	2447 D 2	2470 C 7	3402 B 5	3426 C 4	3449 B 4	3472 C 5	3502 C 1	3529 D 5	3577 C 4	3611 D 1	3634 D 2	4402 D 5	4465 B 6	4490 D 3	4517 C 4	4568 A 5	4591 D 3	7433 C 6
2414 B 1	2448 B 4	2471 C 7	3403 B 5	3427 C 4	3450 B 4	3473 A 6	3504 B 1	3530 D 5	3578 D 3	3612 D 1	3635 C 7	4404 A 7	4466 A 6	4491 A 4	4518 C 3	4569 C 2	4597 A 6	7434 C 6
2415 B 1	2449 D 2	2472 C 7	3404 B 5	3428 C 4	3451 B 4	3474 B 6	3505 B 1	3533 C 4	3579 D 4	3613 A 2	3636 C 7	4405 B 7	4467 C 6	4492 C 7	4521 D 4	4570 D 2	7400 D 6	7437 A 2
2416 B 1	2450 D 2	2473 C 6	3405 B 5	3429 B 4	3452 B 4	3475 A 6	3506 B 1	3534 C 1	3581 C 3	3614 A 2	3637 D 7	4406 D 2	4468 D 5	4494 C 2	4522 A 6	4571 D 6	7401 D 6	7438 B 3
2417 B 1	2451 C 1	2474 C 6	3406 B 5	3430 B 3	3453 B 4	3476 A 4	3507 B 1	3536 D 4	3582 D 3	3615 A 2	3638 D 7	4407 C 7	4469 C 6	4495 D 5	4523 C 6	4572 C 2	7402 D 4	7439 B 3
2418 D 6	2452 C 1	2475 D 6	3407 B 5	3431 B 3	3454 B 4	3477 A 4	3508 B 1	3538 A 2	3583 D 3	3616 A 2	3639 D 7	4408 C 7	4470 D 4	4496 C 5	4524 B 6	4573 B 1	7403 C 1	7440 C 3
2419 D 6	2453 D 2	2476 D 6	3408 B 5	3432 B 3	3455 B 4	3478 A 3	3509 B 1	3539 A 2	3585 D 4	3617 A 4	3640 C 1	4409 C 7	4471 D 4	4497 B 2	4525 C 6	4574 D 5	7413 A 4	7441 B 5
2422 A 1	2454 D 2	2478 A 6	3409 C 5	3433 B 4	3456 B 4	3479 A 4	3510 B 1	3541 B 2	3586 D 4	3618 A 4	3641 C 1	4410 D 4	4472 A 3	4498 D 5	4526 C 3	4575 B 2	7414 A 4	7445 B 1
2424 B 7	2455 D 2	2479 A 6	3410 B 5	3434 B 4	3457 B 5	3480 A 4	3511 B 1	3542 B 2	3587 D 4	3619 A 4	3642 C 1	4450 A 5	4473 D 3	4500 B 6	4527 B 3	4576 B 3	7415 B 3	
2427 B 2	2456 D 2	2480 A 6	3411 C 5	3435 B 4	3458 B 5	3481 A 5	3512 D 6	3543 D 4	3589 D 5	3620 A 4	3643 C 7	4451 A 4	4474 B 1	4501 A 6	4528 B 3	4577 B 6	7416 C 5	

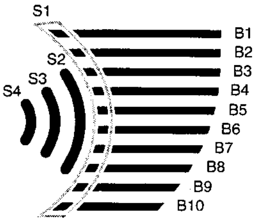


LCD DISPLAY PIN CONNECTIONS

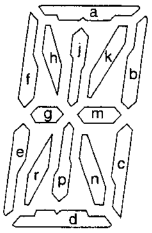

1G
SHUFFLE
2G
HSD
TIMER
5G
DBB
3G
4G
DD3 STEREO
DDPRO LOGIC NORMAL
PHANTOM PROG
V CD
AUX TUNER
1
2
3
IS
5G
RDS
VOCAL
FADER
RECORD
TIMER SET
CD▶TAPE
PLAY MODE
SET CLOCK
PROGRAM
FRONT FMMW
BACK SWLW
REC
STEREO
DDNR
AMPM
DUBBING
BAND
SHUFFLE
TIMER
SIDE
RDS
MODE
CLEAR
12G
11G
10G
9G Dp2
8G Dp1
Col
7G
6G
13G
PRESET
TUNING
2G


S1
S2
S3
S4
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10

(3G)


S1
S2
S3
S4
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10

(4G)


a
b
c
d
e
f
g
h
j
k
m
n
p
r

(6G - 12G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	1	SHUFFLE	B1	B1	IS	a	a	a	a	a	a	a	● RECORD
P2	▭	)	B2	B2	○	b	b	b	b	b	b	b	TIMER SET
P3	2	(	B3	B3	TIMER	f	f	f	f	f	f	f	CD▶TAPE
P4	V	⧖	B4	B4	DBB	h	h	h	h	h	h	h	DUBBING
P5	CD	HSD	B5	B5	◗	k	k	k	k	k	k	k	BAND
P6	AUX	⏏	B6	B6	◗	j , p	j , p	j , p	j , p	j , p	j , p	j , p	SHUFFLE
P7	TUNER	PLAY MODE	B7	B7	🎸	g	g	g	g	g	g	g	TIMER
P8	—	SET CLOCK	B8	B8	✳	m	m	m	m	m	m	m	⊣
P9	—	PROGRAM	B9	B9	🎷	e	e	e	e	e	e	e	PRESET
P10	—	SIDE	B10	B10	🎹	c	c	c	c	c	c	c	■
P11	1	RDS MODE	S1	S1	DD3 STEREO	n	n	n	n	n	n	n	▼ ▲
P12	2	CLEAR	S4	S4	DDPRO LOGIC	r	r	r	r	r	r	r	▶
P13	3	⊢	S3	S3	PHANTOM	d	d	d	d	d	d	d	❚❚
P14	(1)	I I	S2	S2	NORMAL	VOCAL FADER	AM	DDNR	STEREO	REC	BACK	FRONT	-
P15	(2)	◀◀ ▶▶	//	\\	PROG	RDS	PM	. Dp 1	. Dp 2	-	SW	FM	-
P16	(3)	TUNING	\\	//	-	-	-	: col	-	-	LW	MW	-

ELECTRICAL PARTS LIST - FRONT BOARD (Non-HVC version)

MISCELLANEOUS

1400	4822 135 00091	FTD Display 13-BT-150GK
1401	4822 267 51238	16Pin Connector
1410	4822 267 31823	4P Cinch Socket /34
1440	4822 276 13114	Tact Switch
1441	4822 276 13114	Tact Switch
1442	4822 276 13114	Tact Switch
1443	4822 276 13114	Tact Switch
1445	4822 276 13114	Tact Switch
1446	4822 276 13114	Tact Switch
1447	4822 276 13114	Tact Switch
1448	4822 276 13114	Tact Switch
1449	4822 276 13114	Tact Switch
1450	4822 276 13114	Tact Switch
1451	4822 276 13114	Tact Switch
1452	4822 276 13114	Tact Switch
1453	4822 276 13114	Tact Switch
1454	4822 276 13114	Tact Switch
1455	4822 276 13114	Tact Switch
1456	4822 276 13114	Tact Switch
1457	4822 276 13114	Tact Switch
1458	4822 276 13114	Tact Switch
1459	4822 276 13114	Tact Switch
1460	4822 276 13114	Tact Switch
1461	4822 276 13114	Tact Switch
1462	4822 276 13114	Tact Switch
1464	4822 276 13114	Tact Switch
1465	4822 276 13114	Tact Switch
1466	4822 276 13114	Tact Switch
1467	4822 276 13114	Tact Switch
1470	4822 101 21261	Rotary Encoder

CAPACITORS

2400	5322 122 32481	15pF 5% 50V
2401	5322 122 32481	15pF 5% 50V
2402	5322 122 32659	33pF 50V
2403	5322 122 32659	33pF 50V
2404	4822 126 13473	220nF 50V
2405	4822 126 13838	100nF +80/-20% 50V
2406	4822 122 33177	10nF 20% 50V
2407	4822 122 33177	10nF 20% 50V
2408	4822 122 33175	2,2nF 20% 50V
2409	4822 122 33797	47nF 20% 50V
2410	5322 122 32531	100pF 5% 50V
2411	5322 122 32531	100pF 5% 50V
2412	5322 122 32531	100pF 5% 50V
2413	5322 122 32452	47pF 5% 63V
2414	5322 122 32452	47pF 5% 63V
2415	5322 122 32452	47pF 5% 63V
2416	5322 122 32452	47pF 5% 63V
2417	5322 122 32452	47pF 5% 63V
2418	4822 126 14043	1μF +80/-20% 16V
2419	4822 126 14043	1μF +80/-20% 16V
2420	4822 124 40244	2,2μF 20% 63V
2421	4822 124 41584	100μF 20% 10V
2422	5322 116 80853	560pF 5% 50V
2423	4822 124 42446	100μF 20% 10V
2424	4822 126 14083	4μ7 +80/-20% 10V
2425	4822 124 42446	100μF 20% 10V
2427	4822 122 33515	82pF 50V
2428	5322 122 32452	47pF 5% 63V
2429	4822 12614083	4μ7 +80/-20% 10V
2430	4822 126 13838	100nF +80/-20% 50V
2431	5322 116 80853	560pF 50V
2432	4822 126 13838	100nF +80/-20% 50V
2433	4822 126 14043	1μF +80/-20% 16V
2439	4822 126 14043	1μF +80/-20% 16V
2440	4822 126 14043	1μF +80/-20% 16V
2441	5322 122 32531	100pF 5% 50V
2442	4822 126 14083	4μ7 +80/-20% 10V
2443	4822 126 13838	100nF +80/-20% 50V
2444	4822 126 13838	100nF +80/-20% 50V
2445	4822 126 13838	100nF +80/-20% 50V
2446	4822 124 42446	100μF 20% 10V
2447	5322 122 32654	22nF 50V
2448	4822 126 14083	4μ7 +80/-20% 10V
2449	5322 122 32268	470pF 50V
2450	5322 122 32268	470pF 50V
2451	5322 122 32448	10pF 5% 50V
2452	5322 122 32448	10pF 5% 50V
2453	5322 122 32268	470pF 50V
2454	5322 122 32268	470pF 50V
2455	4822 126 14043	1μF +80/-20% 16V
2456	4822 126 14043	1μF +80/-20% 16V
2457	5322 122 32654	22nF 50V
2463	5322 122 32448	10pF 5% 50V
2464	5322 122 32448	10pF 5% 50V
2465	5322 122 32448	10pF 5% 50V
2466	5322 122 32448	10pF 5% 50V
2467	5322 122 32448	10pF 5% 50V
2468	5322 122 32448	10pF 5% 50V
2469	5322 122 32448	10pF 5% 50V
2476	4822 122 32535	680pF 10% 63V
2477	4822 124 42446	100μF 20% 10V
2478	4822 126 13473	220nF 50V
2479	4822 126 13473	220nF 50V
2480	4822 126 13473	220nF 50V
2481	4822 126 13473	220nF 50V
2482	5322 122 32448	10pF 5% 50V
2483	5322 122 32448	10pF 5% 50V
2486	5322 122 32661	56pF 5% 50V
2487	5322 122 32661	56pF 5% 50V
2488	5322 122 32661	56pF 5% 50V
2489	5322 122 32661	56pF 5% 50V
2490	5322 122 32661	56pF 5% 50V
2491	5322 122 32448	10pF 5% 50V
2700	4822 122 33177	10nF 50V

ELECTRICAL PARTS LIST - FRONT BOARD (Non-HVC version)

2700	4822 122 33177	10nF 50V

RESISTORS

3400	4822 051 10102	1k 2% 0,25W
3401	4822 051 20684	680k 5% 0,1W
3402	4822 051 20105	1M 5% 0,1W
3403	4822 051 10102	1k 2% 0,25W
3404	4822 051 10102	1k 2% 0,25W
3405	4822 051 10102	1k 2% 0,25W
3406	4822 051 10102	1k 2% 0,25W
3407	4822 051 10102	1k 2% 0,25W
3408	4822 051 10102	1k 2% 0,25W
3409	4822 051 10102	1k 2% 0,25W
3410	4822 117 10833	10k 1% 0,1W
3411	4822 117 11449	2k2 1% 0,1W
3412	4822 117 11449	2k2 1% 0,1W
3413	4822 051 10102	1k 2% 0,25W
3414	4822 051 10102	1k 2% 0,25W
3415	4822 051 10102	1k 2% 0,25W
3416	4822 051 10102	1k 2% 0,25W
3417	4822 051 10102	1k 2% 0,25W
3418	4822 051 10102	1k 2% 0,25W
3419	4822 051 10102	1k 2% 0,25W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 050 11002	1k 1% 0,4W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 117 10833	10k 1% 0,1W
3431	4822 117 10833	10k 1% 0,1W
3432	4822 117 10833	10k 1% 0,1W
3433	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3448	4822 051 10102	1k 2% 0,25W
3449	4822 051 10102	1k 2% 0,25W
3450	4822 051 10102	1k 2% 0,25W
3451	4822 051 10102	1k 2% 0,25W
3452	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 051 10102	1k 2% 0,25W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 051 10102	1k 2% 0,25W
3457	4822 051 10102	1k 2% 0,25W
3458	4822 051 10102	1k 2% 0,25W
3459	4822 051 10102	1k 2% 0,25W
3460	4822 051 10102	1k 2% 0,25W
3461	4822 051 10102	1k 2% 0,25W
3462	4822 117 10833	10k 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 051 10102	1k 2% 0,25W
3465	4822 051 20101	100R 5% 0,1W
3466	4822 051 20101	100R 5% 0,1W
3467	4822 051 20101	100R 5% 0,1W
3468	4822 051 20101	100R 5% 0,1W
3469	4822 117 10833	10k 1% 0,1W
3470	4822 051 10102	1k 2% 0,25W
3471	4822 117 10833	10k 1% 0,1W
3472	4822 051 20104	100k 5% 0,1W
3473	4822 051 10102	1k 2% 0,25W
3474	4822 117 10833	10k 1% 0,1W
3475	4822 051 20478	4R7 5% 0,1W
3476	4822 051 20104	100k 5% 0,1W
3477	4822 051 20104	100k 5% 0,1W
3478	4822 051 20681	680R 5% 0,1W
3479	4822 051 20681	680R 5% 0,1W
3480	4822 051 20681	680R 5% 0,1W
3481	4822 051 20681	680R 5% 0,1W
3482	4822 116 52289	5k6 5% 0,5W
3483	4822 116 52276	3k9 5% 0,5W
3484	4822 051 20331	330R 5% 0,1W
3485	4822 051 20331	330R 5% 0,1W
3486	4822 051 20331	330R 5% 0,1W
3487	4822 051 20331	330R 5% 0,1W
3488	4822 116 52219	330R 5% 0,5W
3489	4822 116 52219	330R 5% 0,5W
3490	4822 116 52219	330R 5% 0,5W
3491	4822 116 52219	330R 5% 0,5W
3492	4822 051 20331	330R 5% 0,1W
3493	4822 051 20331	330R 5% 0,1W
3494	4822 051 20331	330R 5% 0,1W
3496	4822 051 20331	330R 5% 0,1W
3497	4822 051 20474	470k 5% 0,1W
3498	4822 051 20474	470k 5% 0,1W
3499	4822 051 20474	470k 5% 0,1W
3500	4822 051 20562	5k6 5% 0,1W
3501	4822 051 20223	22k 5% 0,1W
3502	4822 051 10102	1k 2% 0,25W
3503	4822 116 83864	10k 5% 0,5W
3504	4822 117 10833	10k 1% 0,1W
3505	4822 117 10833	10k 1% 0,1W

ELECTRICAL PARTS LIST - FRONT BOARD (Non-HVC version)

3506	4822 117 10833	10k 1% 0,1W
3507	4822 051 10102	1k 2% 0,25W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 051 10102	1k 2% 0,25W
3511	4822 051 10102	1k 2% 0,25W
3512	4822 051 20562	5k6 5% 0,1W
3513	4822 051 20562	5k6 5% 0,1W
3514	4822 051 20474	470k 5% 0,1W
3515	4822 051 20563	56k 5% 0,1W
3516	4822 051 20153	15k 1% 0,1W
3517	4822 051 20153	15k 5% 0,1W
3518	4822 116 52245	150k 5% 0,5W
3519	4822 051 10102	1k 2% 0,25W
3521	4822 051 10102	1k 2% 0,25W
3522	4822 116 83884	47k 5% 0,167W
3523	4822 051 20472	4k7 5% 0,1W
3524	4822 051 10102	1k 2% 0,25W
3525	4822 051 10102	1k 2% 0,25W
3526	4822 051 10102	1k 2% 0,25W
3527	4822 051 10102	1k 2% 0,25W
3528	4822 051 10102	1k 2% 0,25W
3529	4822 051 10102	1k 2% 0,25W
3530	4822 051 10102	1k 2% 0,25W
3531	4822 052 10108 ⚠	1R 5% 0,33W
3532	4822 052 10108 ⚠	1R 5% 0,33W
3533	4822 051 20392	3k9 5% 0,1W
3534	4822 051 20392	3k9 5% 0,1W
3535	4822 116 52276	3k9 5% 0,5W
3536	4822 051 20681	680R 5% 0,1W
3537	4822 116 83864	10k 5% 0,167W
3538	4822 117 10833	10k 1% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3540	4822 116 83864	10k 5% 0,167W
3541	4822 117 11449	2k2 5% 0,1W
3542	4822 051 20224	220k 5% 0,1W
3543	4822 051 20478	4R7 5% 0,1W
3544	4822 117 10833	10k 1% 0,1W
3545	4822 117 10833	10k 1% 0,1W
3546	4822 051 10102	1k 2% 0,25W
3547	4822 051 10102	1k 2% 0,25W
3568	4822 051 20331	330R 5% 0,1W
3569	4822 051 20331	330R 5% 0,1W
3570	4822 051 20331	330R 5% 0,1W
3571	4822 051 20333	33k 5% 0,1W
3572	4822 117 10833	10k 1% 0,1W
3573	4822 051 20104	100k 5% 0,1W
3574	4822 051 20105	1M 5% 0,1W
3575	4822 051 20331	330R 5% 0,1W
3576	4822 051 20331	330R 5% 0,1W
3577	4822 117 11503	220R 1% 0,1W
3578	4822 117 11503	220R 1% 0,1W
3579	4822 051 20472	4k7 5% 0,1W
3581	4822 117 11503	220R 1% 0,1W
3582	4822 117 11503	220R 1% 0,1W
3583	4822 051 20472	4k7 5% 0,1W
3585	4822 117 11503	220R 1% 0,1W
3586	4822 117 11503	220R 1% 0,1W
3587	4822 051 20472	4k7 5% 0,1W
3589	4822 117 11503	220R 1% 0,1W
3590	4822 117 11503	220R 1% 0,1W
3591	4822 051 20472	4k7 5% 0,1W
3600	4822 051 20331	330R 5% 0,1W
3602	4822 051 20331	330R 5% 0,1W
3603	4822 051 20331	330R 5% 0,1W
3604	4822 051 20472	4k7 5% 0,1W
3605	4822 051 20683	68k 5% 0,1W
3606	4822 051 20683	68k 5% 0,1W
3607	4822 051 20472	4k7 5% 0,1W
3608	4822 051 20683	68k 5% 0,1W
3609	4822 051 20683	68k 5% 0,1W
3610	4822 117 10833	10k 1% 0,1W
3611	4822 117 10833	10k 1% 0,1W
3612	4822 117 10833	10k 1% 0,1W
3613	4822 051 20472	4k7 5% 0,1W
3614	4822 051 20472	4k7 5% 0,1W
3615	4822 051 20681	680R 5% 0,1W
3616	4822 051 20101	100R 5% 0,1W
3617	4822 051 20472	4k7 5% 0,1W
3618	4822 051 20472	4k7 5% 0,1W
3619	4822 051 20681	680R 5% 0,1W
3620	4822 051 20101	100R 5% 0,1W
3621	4822 051 20472	4k7 5% 0,1W
3622	4822 051 20472	4k7 5% 0,1W
3623	4822 051 20681	680R 5% 0,1W
3624	4822 051 20101	100R 5% 0,1W
3625	4822 051 10102	1k 2% 0,25W
3626	4822 051 10102	1k 2% 0,25W
3627	4822 051 10102	1k 2% 0,25W
3628	4822 051 10102	1k 2% 0,25W
3629	4822 051 10102	1k 2% 0,25W
3630	4822 051 10102	1k 2% 0,25W
3631	4822 117 11149	82k 5% 0,1W
3632	4822 117 11149	82k 5% 0,1W
3633	4822 051 10102	1k 2% 0,25W
3634	4822 051 10102	1k 2% 0,25W
3635	4822 051 20101	100R 5% 0,1W
3636	4822 051 20101	100R 5% 0,1W
3637	4822 051 20101	100R 5% 0,1W
3638	4822 051 20101	100R 5% 0,1W
3639	4822 051 20101	100R 5% 0,1W
3640	4822 051 10102	1k 2% 0,25W
3641	4822 051 10102	1k 2% 0,25W
3642	4822 051 10102	1k 2% 0,25W
3644	4822 051 10102	1k 2% 0,25W

ELECTRICAL PARTS LIST - FRONT BOARD (Non-HVC version)

RESISTORS

3646	4822 051 10102	1k 2% 0,25W
3648	4822 051 10102	1k 2% 0,25W
3649	4822 051 20228	2R2 5% 0,1W
3650	4822 051 10102	1k 2% 0,25W
3651	4822 051 10102	1k 2% 0,25W
3652	4822 051 10102	1k 2% 0,25W
3700	4822 117 10833	10k 5% 0,1W
3701	4822 117 10833	10k 5% 0,1W
4404	4822 051 20008	Chip Jumper 0805
4407	4822 051 20008	Chip Jumper 0805
4408	4822 051 20008	Chip Jumper 0805
4409	4822 051 20008	Chip Jumper 0805
4450	4822 051 20008	Chip Jumper 0805
4451	4822 051 20008	Chip Jumper 0805
4452	4822 051 20008	Chip Jumper 0805
4453	4822 051 20008	Chip Jumper 0805
4454	4822 051 20008	Chip Jumper 0805
4455	4822 051 20008	Chip Jumper 0805
4456	4822 051 20008	Chip Jumper 0805
4457	4822 051 20008	Chip Jumper 0805
4458	4822 051 20008	Chip Jumper 0805
4459	4822 051 10008	Chip Jumper 1206
4460	4822 051 20008	Chip Jumper 0805
4461	4822 051 10008	Chip Jumper 1206
4462	4822 051 10008	Chip Jumper 1206
4463	4822 051 20008	Chip Jumper 0805
4464	4822 051 10008	Chip Jumper 1206
4465	4822 051 10008	Chip Jumper 1206
4466	4822 051 10008	Chip Jumper 1206
4467	4822 051 10008	Chip Jumper 1206
4468	4822 051 20008	Chip Jumper 0805
4469	4822 051 10008	Chip Jumper 1206
4470	4822 051 10008	Chip Jumper 1206
4471	4822 051 20008	Chip Jumper 0805
4472	4822 051 10008	Chip Jumper 1206
4473	4822 051 10008	Chip Jumper 1206
4474	4822 051 10008	Chip Jumper 1206
4475	4822 051 10008	Chip Jumper 1206
4476	4822 051 10008	Chip Jumper 1206
4477	4822 051 20008	Chip Jumper 0805
4478	4822 051 10008	Chip Jumper 1206
4479	4822 051 20008	Chip Jumper 0805
4482	4822 051 10008	Chip Jumper 1206
4483	4822 051 10008	Chip Jumper 1206
4484	4822 051 10008	Chip Jumper 1206
4485	4822 051 10008	Chip Jumper 1206
4486	4822 051 20008	Chip Jumper 0805
4487	4822 051 20008	Chip Jumper 0805
4488	4822 051 20008	Chip Jumper 0805
4489	4822 051 20008	Chip Jumper 0805
4490	4822 051 10008	Chip Jumper 1206
4491	4822 051 10008	Chip Jumper 1206
4492	4822 051 10008	Chip Jumper 1206
4494	4822 051 10008	Chip Jumper 1206
4495	4822 051 20008	Chip Jumper 0805
4496	4822 051 10008	Chip Jumper 1206
4497	4822 051 20008	Chip Jumper 0805
4498	4822 051 20008	Chip Jumper 0805
4500	4822 051 10008	Chip Jumper 1206
4501	4822 051 10008	Chip Jumper 1206
4502	4822 051 10008	Chip Jumper 1206
4503	4822 051 10008	Chip Jumper 1206
4504	4822 051 10008	Chip Jumper 1206
4506	4822 051 10008	Chip Jumper 1206
4507	4822 051 20008	Chip Jumper 0805
4508	4822 051 10008	Chip Jumper 1206
4509	4822 051 10008	Chip Jumper 1206
4510	4822 051 10008	Chip Jumper 1206
4511	4822 051 10008	Chip Jumper 1206
4512	4822 051 10008	Chip Jumper 1206
4513	4822 051 10008	Chip Jumper 1206
4515	4822 051 10008	Chip Jumper 1206
4516	4822 051 10008	Chip Jumper 1206
4517	4822 051 10008	Chip Jumper 1206
4518	4822 051 10008	Chip Jumper 1206
4521	4822 051 20008	Chip Jumper 0805
4522	4822 051 10008	Chip Jumper 1206
4523	4822 051 10008	Chip Jumper 1206
4524	4822 051 20008	Chip Jumper 0805
4525	4822 051 20008	Chip Jumper 0805
4526	4822 051 10008	Chip Jumper 1206
4527	4822 051 10008	Chip Jumper 1206
4528	4822 051 10008	Chip Jumper 1206
4530	4822 051 10008	Chip Jumper 1206
4532	4822 051 20008	Chip Jumper 0805
4535	4822 051 20008	Chip Jumper 0805
4545	4822 051 20008	Chip Jumper 0805
4554	4822 051 20008	Chip Jumper 0805
4559	4822 051 10008	Chip Jumper 1206
4560	4822 051 10008	Chip Jumper 1206
4562	4822 051 10008	Chip Jumper 1206
4563	4822 051 10008	Chip Jumper 1206
4564	4822 051 10008	Chip Jumper 1206
4565	4822 051 10008	Chip Jumper 1206
4566	4822 051 20008	Chip Jumper 0805
4567	4822 051 10008	Chip Jumper 1206
4568	4822 051 10008	Chip Jumper 1206
4569	4822 051 10008	Chip Jumper 1206
4570	4822 051 10008	Chip Jumper 1206
4571	4822 051 10008	Chip Jumper 1206
4572	4822 051 10008	Chip Jumper 1206
4573	4822 051 10008	Chip Jumper 1206
4574	4822 051 10008	Chip Jumper 1206
4575	4822 051 10008	Chip Jumper 1206
4576	4822 051 10008	Chip Jumper 1206
4577	4822 051 20008	Chip Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD (Non-HVC version)

RESISTORS

4578	4822 051 10008	Chip Jumper 1206
4579	4822 051 10008	Chip Jumper 1206
4580	4822 051 20008	Chip Jumper 0805
4581	4822 051 20008	Chip Jumper 0805
4582	4822 051 10008	Chip Jumper 1206
4583	4822 051 10008	Chip Jumper 1206
4584	4822 051 20008	Chip Jumper 0805
4585	4822 051 10008	Chip Jumper 1206
4586	4822 051 20008	Chip Jumper 0805
4587	4822 051 10008	Chip Jumper 1206
4588	4822 051 10008	Chip Jumper 1206
4589	4822 051 10008	Chip Jumper 1206
4590	4822 051 20008	Chip Jumper 0805
4591	4822 051 10008	Chip Jumper 1206
4597	4822 051 10008	Chip Jumper 1206

COILS & FILTERS

5400	4822 242 70938	X'tal Resonator 32,768kHz
5401	4822 242 72066	Ceram Resonator 8MHz
5402	4822 242 72195	X'tal 4,332MHz
5403	4822 156 21721	2,2µH 10%
5404	4822 156 21721	2,2µH 10%
5405	4822 157 52983	22µH 10%
5406	4822 157 52983	22µH 10%
5407	4822 157 52983	22µH 10%
5408	4822 157 52983	22µH 10%

DIODES

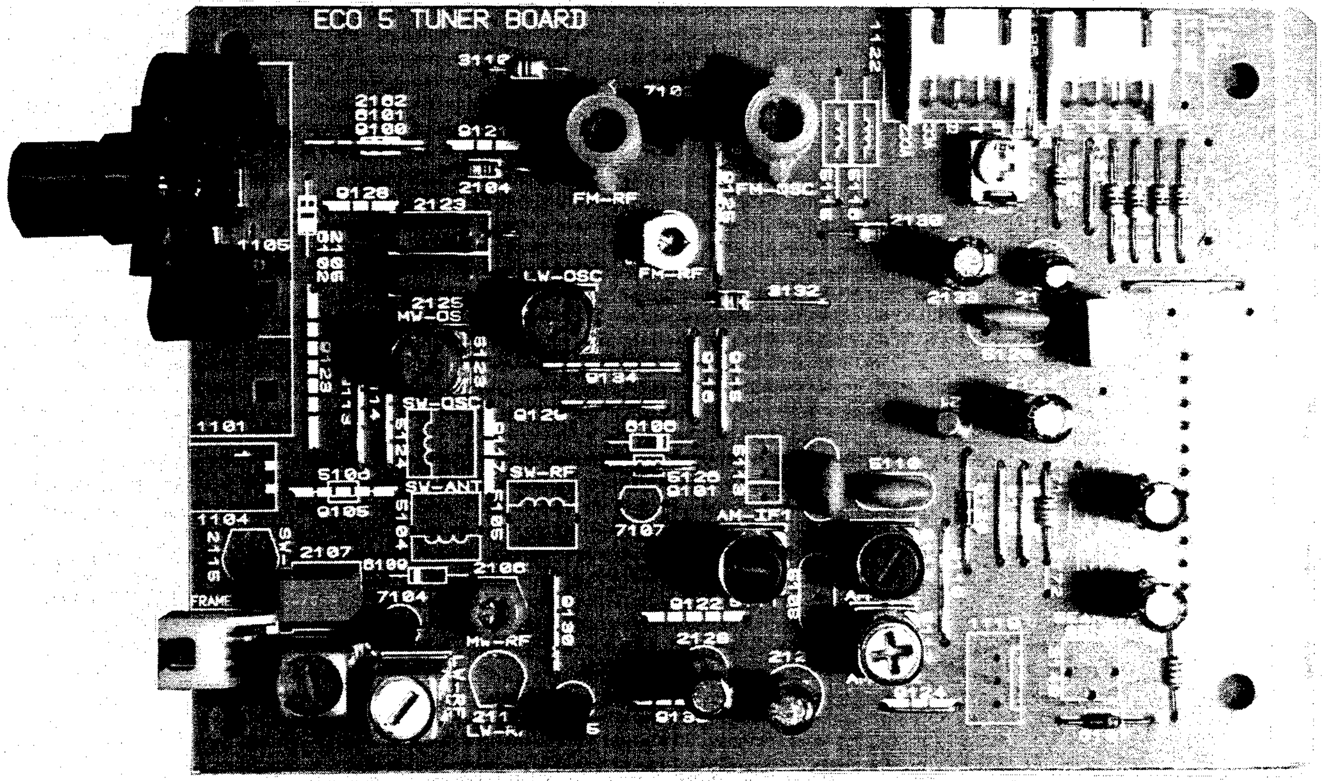
6400	4822 130 31983	BAT85
6401	5322 130 30684	1N4002
6402	4822 130 30621	1N4148
6405	4822 130 30621	1N4148
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 10791	LTL-1CHGE
6409	4822 130 10791	LTL-1CHGE
6410	4822 130 10791	LTL-1CHGE
6411	4822 130 10791	LTL-1CHGE
6412	4822 130 30621	1N4148
6420	4822 130 10791	LTL-1CHGE
6422	4822 130 30621	1N4148
6425	4822 130 10791	LTL-1CHGE
6426	4822 130 10792	LTL-1CHPE
6427	4822 130 10774	LTL-293SJ
6428	4822 130 10774	LTL-293SJ
6429	4822 130 10774	LTL-293SJ
6430	4822 130 10774	LTL-293SJ
6431	4822 130 10774	LTL-293SJ
6432	4822 130 10774	LTL-293SJ
6433	4822 130 10774	LTL-293SJ
6434	4822 130 30621	1N4148
6435	4822 130 30621	1N4148
6436	4822 130 30621	1N4148
6437	4822 130 30621	1N4148
6438	4822 130 30621	1N4148
6439	4822 130 30621	1N4148
6440	4822 130 30621	1N4148
6441	4822 130 30621	1N4148
6442	4822 130 30621	1N4148
6443	4822 130 30621	1N4148
6444	4822 130 30621	1N4148
6446	4822 130 30621	1N4148
6447	4822 130 30621	1N4148
6448	4822 130 30621	1N4148
6449	4822 130 30621	1N4148
6450	4822 130 34173	BZX79-C5V6
6451	4822 130 34173	BZX79-C5V6
6452	4822 130 34173	BZX79-C5V6
6453	4822 130 30621	1N4148
6454	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7400	5322 130 42755	BC847C
7401	5322 130 42755	BC847C
7402	5322 130 42755	BC847C
7403	4822 130 42616	BC818-40
7413	5322 130 42755	BC847C
7414	5322 130 42755	BC847C
7415	5322 130 42755	BC847C
7416	5322 130 42755	BC847C
7417	5322 130 42755	BC847C
7418	5322 130 42756	BC857C
7419	5322 130 42756	BC857C
7421	5322 130 42756	BC857C
7422	5322 130 42755	BC847C
7423	5322 130 42756	BC857C
7425	5322 130 42756	BC857C
7427	5322 130 42756	BC857C
7428	5322 130 42755	BC847C
7429	5322 130 42756	BC857C
7430	5322 130 42755	BC847C
7431	5322 130 42756	BC857C
7432	5322 130 42755	BC847C
7433	5322 130 42755	BC847C
7434	5322 130 42755	BC847C
7435	4822 130 10165	GP1U28XP
7436	4822 209 31508	ST24C01B6
7437	4822 209 31981	SAA6579T
7438	4822 209 15449	74HC4094D
7439	4822 209 15449	74HC4094D
7440	4822 209 15449	74HC4094D
7441	4822 209 15475	TMP87CS71AF - 770S51491
7441*	4822 209 15476	TMP87CS71AF - 770S51501
7445	5322 130 42755	BC847C

* For /22/22S/25 only

NOTE: Only the parts mentioned in this list are normal service spare parts.


ECO 5 TUNER BOARD
FM-RF
FM-OSC
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
AM-IF1
MW-RF
FRAME
1101
1104
1105
7104
7107

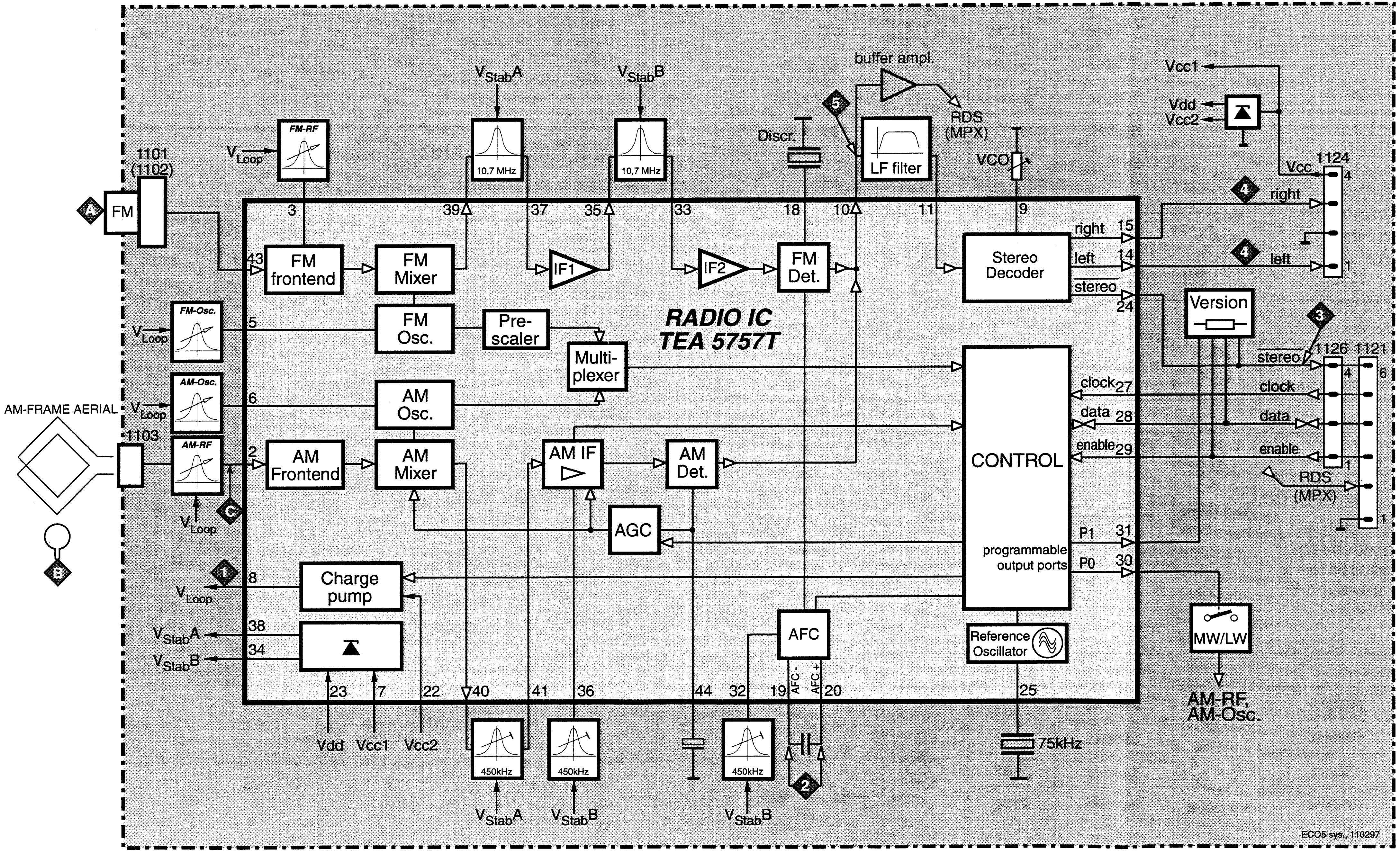
TUNER BOARD ECO5

TABLE OF CONTENTS

Blockdiagram 7B-1
Adjustmant table 7B-2
Component layout...7B-2
Circuit diagram 7B-3
Partslist 7B-4

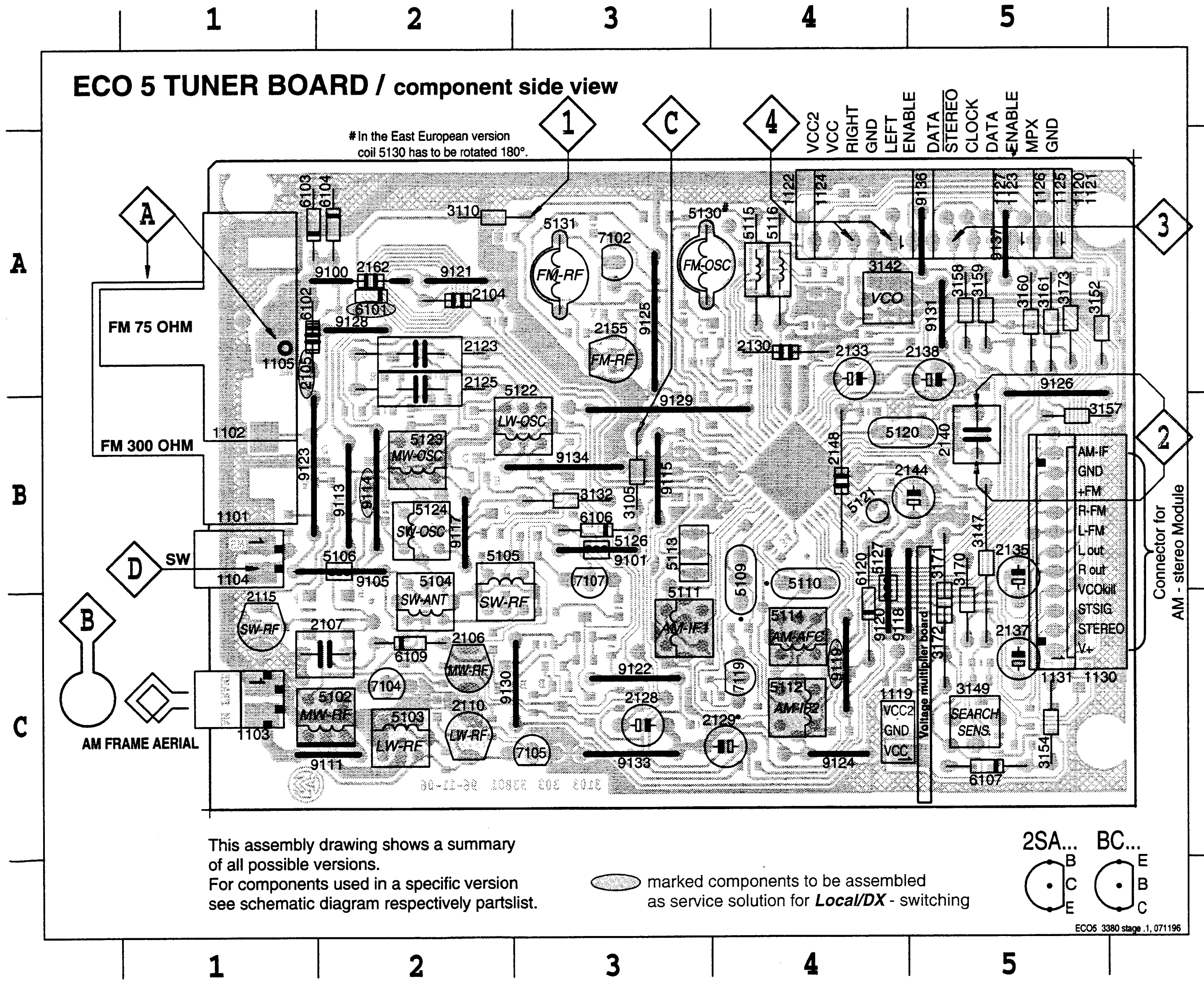
BLOCKDIAGRAM

TUNER BOARD
ECO 5 systems


V_Stab A
V_Stab B
buffer ampl.
RDS (MPX)
Discr.
LF filter
VCO
Vcc1
Vdd
Vcc2
Vcc
1124
right
left
FM-RF
V_Loop
10,7 MHz
10,7 MHz
1101 (1102)
FM
A
3
39
37
35
33
18
10
11
9
5
4
43
FM frontend
FM Mixer
IF1
IF2
FM Det.
Stereo Decoder
right 15
left 14
stereo 24
1
FM-Osc.
FM Osc.
Pre-scaler
Multi-plexer
RADIO IC
TEA 5757T
Version
3
stereo
1126 1121
6
4
AM-Osc.
AM-FRAME AERIAL
6
AM Osc.
clock 27
data 28
enable 29
clock
data
enable
1103
AM-RF
2
AM Frontend
AM Mixer
AM IF
AM Det.
CONTROL
RDS (MPX)
1
1
C
B
AGC
P1 31
programmable output ports
P0 30
1
8
Charge pump
V_Loop
38
34
V_Stab A
V_Stab B
AFC
Reference Oscillator
MW/LW
AM-RF, AM-Osc.
23
7
22
40
41
36
44
32
19
AFC -
AFC +
20
25
Vdd
Vcc1
Vcc2
450kHz
450kHz
450kHz
2
75kHz
V_Stab A
V_Stab B
V_Stab B
ECO5 sys., 110297

1101 A1	2106 C2	2137 C5	3147 B5	3172 C5	5112 C4	5130 A3	7104 C2	9118 B4	9130 C3
1102 A1	2107 C2	2138 A5	3149 C5	3173 A5	5113 B3	5131 A3	7105 C3	9119 C4	9131 A5
1103 C1	2110 C2	2140 B5	3152 A5	5102 C2	5114 C4	6101 A2	7107 B3	9120 B4	9133 C3
1104 B1	2115 C1	2144 B5	3154 C5	5103 C2	5115 A4	6102 A1	9100 A2	9121 A2	9134 B3
1105 A1	2123 A2	2148 B4	3157 B5	5104 C2	5116 A4	6103 A1	9101 B3	9122 C3	9136 A5
1119 C5	2125 A2	2155 A3	3158 A5	5105 B2	5120 B4	6104 A2	9105 B2	9123 B1	9137 A5
1120 A5	2128 C3	2162 A2	3159 A5	5106 B2	5121 B4	6106 B3	9111 C2	9124 C4	
1130 B5	2129 C4	3105 B3	3160 A5	5108 C4	5122 B3	6107 C5	9113 B2	9125 A3	
1131 B5	2130 A4	3110 A2	3161 A5	5109 B4	5123 B2	6109 C2	9114 B2	9126 B5	
2104 A2	2133 A4	3132 B3	3170 C5	5110 B4	5124 B2	6120 C4	9115 B3	9128 A2	
2105 A1	2135 B5	3142 A4	3171 C5	5111 C3	5126 B3	7102 A3	9117 B2	9129 B3	

ECO 5 TUNER BOARD / component side view


1
2
3
4
5
A
B
C
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX
GND
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
Voltage multiplier board
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-IF2
AM-AFC
SEARCH SENS.
VCC2
GND
VCC
2SA...
BC...
B
C
E
E
B
C

In the East European version coil 5130 has to be rotated 180°.

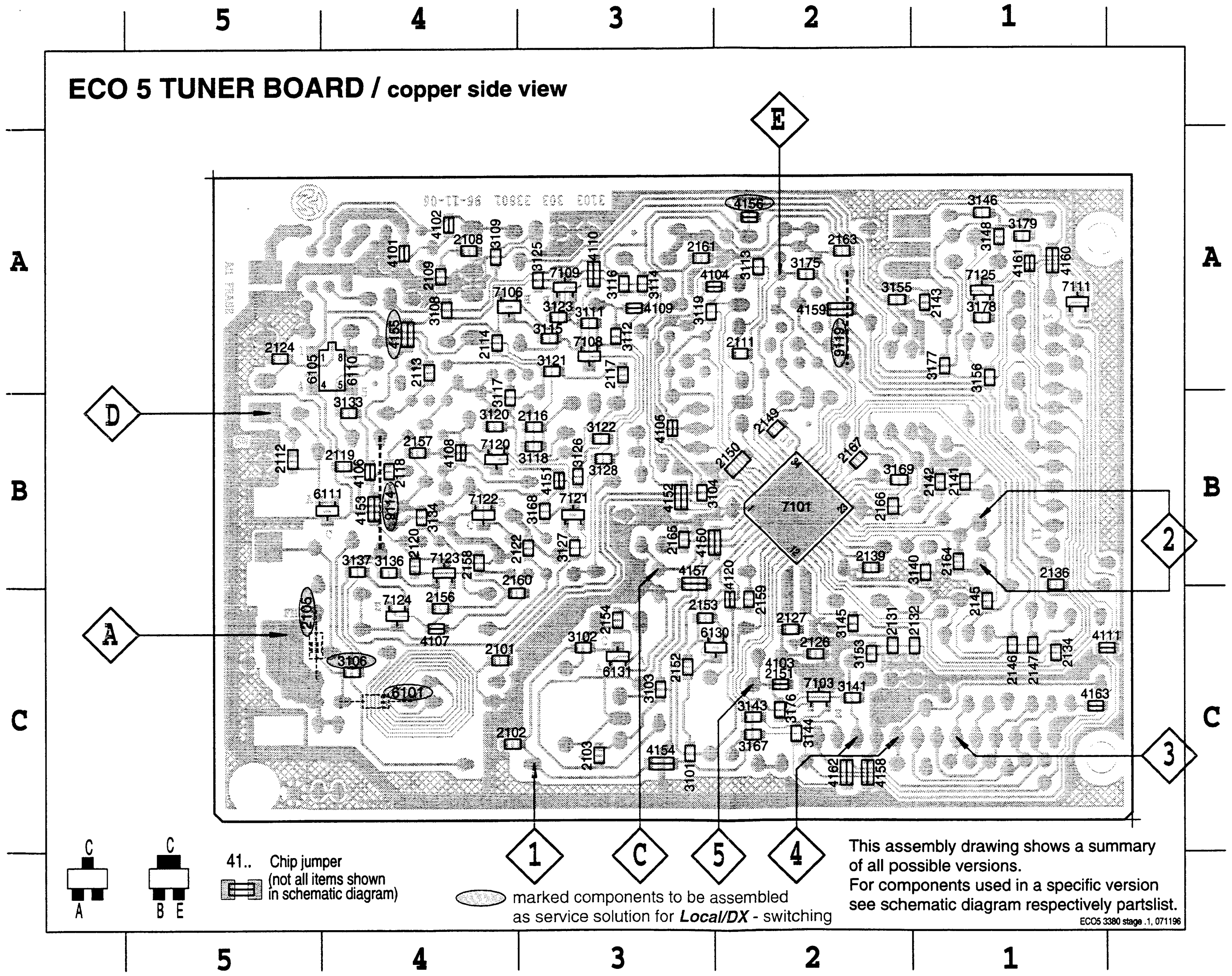
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for *Local/DX* - switching

ECO5 3380 stage .1, 071196

2101 C4	2119 B4	2141 B1	2154 C3	3101 C3	3116 A3	3133 B4	3153 C2	4103 C2	4151 B3	6110 A4	7121 B3
2102 C4	2120 B4	2142 B1	2156 C4	3102 C3	3117 B4	3134 B4	3155 A2	4104 A2	4152 B3	6111 B4	7122 B4
2103 C3	2122 B3	2143 A1	2157 B4	3103 C3	3118 B3	3136 B4	3156 A1	4105 B3	4153 B4	6130 C2	7123 B4
2108 A4	2124 A5	2145 C1	2158 B4	3104 B3	3120 B4	3137 B4	3167 C2	4106 B4	4154 C3	6131 C3	7124 C4
2109 A4	2126 C2	2146 C1	2159 C2	3106 C4	3121 A3	3140 B1	3168 B3	4107 C4	4155 A4	7101 B2	
2112 B5	2127 C2	2147 C1	2160 C4	3108 A4	3122 B3	3141 C2	3169 B2	4108 B4	4156 A2	7103 C2	
2113 A4	2131 C2	2149 B2	2161 A3	3109 A4	3123 A3	3143 C2	3175 A2	4109 A3	4157 B3	7106 A4	
2114 A4	2132 C1	2150 B2	2163 A2	3111 A3	3125 A3	3144 C2	3176 C2	4110 A3	4158 C2	7108 A3	
2116 B3	2134 C1	2151 C2	2165 B3	3112 A3	3126 B3	3145 C2	3177 A1	4111 C1	4159 A2	7109 A3	
2117 A3	2136 B1	2152 C3	2166 B2	3114 A3	3127 B3	3146 A1	4101 A4	4120 C2	4160 A1	7111 A1	
2118 B4	2139 B2	2153 C3	2167 B2	3115 A3	3128 B3	3148 A1	4102 A4	4150 B2	6105 A4	7120 B4	

ECO 5 TUNER BOARD / copper side view


5
4
3
2
1
A
B
C
E
D
A
C
1
5
4
2
3
7101
C
B E
A
C

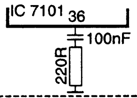
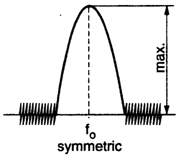
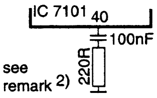
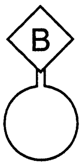
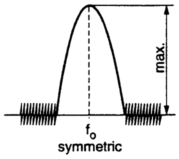
41.. Chip jumper (not all items shown in schematic diagram)

marked components to be assembled as service solution for *Local/DX* - switching

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

ECO5 3380 stage .1, 071196

TUNER ADJUSTMENT TABLE (ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	◇1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 26 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	◇C Δf=±15kHz V_{RF} = 3mV		5111	◇4	
			 see remark 2)	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 10mV		5114	◇2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	 Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	◇4	
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5102		

ECO5, 170996

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation
(input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

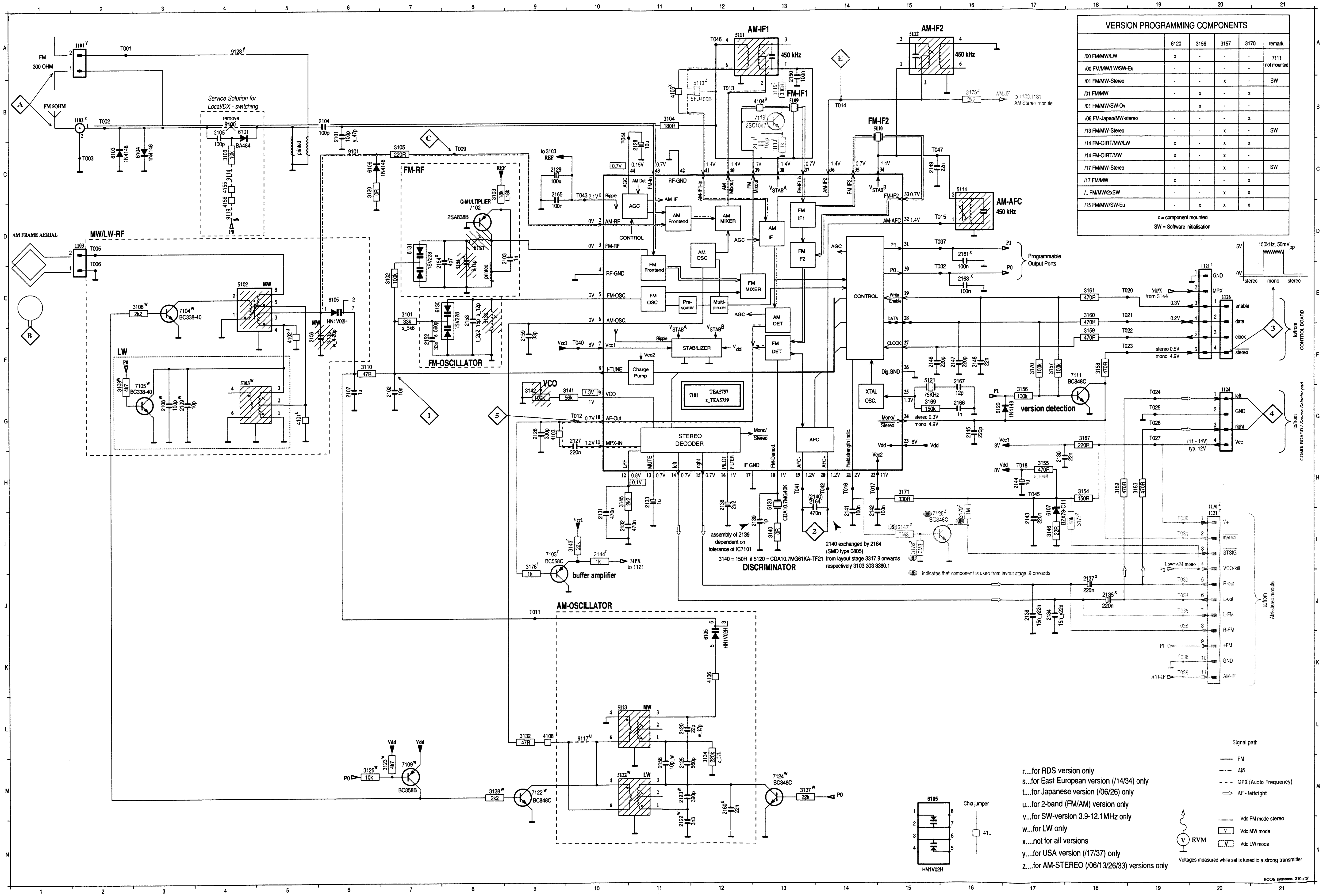
2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↕ Repeat

TUNER BOARD ECO5 / Systems


AM-IF1
AM-IF2
FM-IF1
FM-IF2
AM-AFC
450 kHz
FM-RF
FM-OSCILLATOR
MW/LW-RF
MW
LW
AM-OSCILLATOR
VCO
DISCRIMINATOR
buffer amplifier
version detection
Service Solution for Local/DX - switching
FM 300 OHM
FM 50HM
AM FRAME AERIAL
Q-MULTIPLIER
TEA5757
z_TEA5759
AGC
AM IF
AM Frontend
AM MIXER
FM Frontend
FM MIXER
FM OSC
Pre-scaler
Multi-plexer
AM OSC
AM DET
FM DET
FM IF1
FM IF2
STABILIZER
Charge Pump
STEREO DECODER
CONTROL
XTAL OSC.
AFC
Programmable Output Ports
to/from CONTROL BOARD
to/from COMBI BOARD / Source Selector part
to/from AM-stereo-module
150kHz, 50mV$_{pp}$
5V
0V
stereo
mono
stereo
Chip jumper
HN1V02H
Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right
Vdc FM mode stereo
Vdc MW mode
Vdc LW mode
EVM
ECO5 systems. 2101

VERSION PROGRAMMING COMPONENTS	6120	3156	3157	3170	remark
/00 FM/MW/LW	x	-	-	-	7111 not mounted
/00 FM/MW/LW/SW-Eu	-	-	-	-	
/01 FM/MW-Stereo	-	-	x	-	SW
/01 FM/MW	-	x	-	x	
/01 FM/MW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FM/MW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FM/MW-Stereo	-	-	x	-	SW
/17 FM/MW	x	-	-	x	
/.. FM/MW/2xSW	-	-	x	x	
/15 FM/MW/SW-Eu	-	x	x	x	

x = component mounted
SW = Software initialisation

assembly of 2139 dependent on tolerance of IC7101

3140 = 150R if 5120 = CDA10.7MG61KA-TF21

2140 exchanged by 2164 (SMD type 0805) from layout stage 3317.9 onwards respectively 3103 303 3380.1

.6 indicates that component is used from layout stage .6 onwards

r....for RDS version only
s...for East European version (/14/34) only
t....for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

Voltages measured while set is tuned to a strong transmitter

1101	A 1
1102	B 2
1103	D 2
1121	E20
1124	G20
1126	E20
1130	I20
1131	I20
2101	C 6
2102	G 7
2103	D 9
2104	B 6
2106	F 5
2107	G 6
2108	G 3
2109	G 3
2111	C13
2120	L11
2122	N11
2123	M11
2125	M11
2126	G 9
2127	G10
2128	C11
2129	C 9
2130	H17
2131	I10
2132	I10
2133	H11
2134	J17
2135	J18
2136	J17
2137	J18
2138	H12
2139	I13
2140	H14
2141	H14
2142	H14
2143	I17
2144	H17
2145	G16
2146	F15
2147	F16
2148	F16
2149	C15
2150	B13
2152	F 7
2153	E 8
2154	E 7
2155	D 8
2158	M11
2159	F 9
2160	M12
2161	D16
2163	E16
2164	H14
2165	C 9
2166	G16
2167	F16
3101	E 7
3102	E 7
3103	C 8
3104	B11
3105	C 7
3108	E 3
3109	F 2
3110	F 6
3113	C13
3119	B13
3120	C 6
3123	M 7
3125	M 6
3128	M 8
3132	L 9
3134	M12
3137	M13
3140	I13
3141	G10
3142	G 9
3143	I10
3144	I10
3145	H10
3146	I17
3147	I15
3152	H18
3153	H19
3154	H18
3155	H17
3156	G17
3157	F17
3158	F18
3159	F18
3160	E18
3161	E18
3167	G18
3169	G15
3170	F17
3171	H15
3175	B16
3176	J 9
3177	I18
3178	I15
3179	I16
4101	G 5
4102	F 5
4103	G 9
4104	B13
4105	B11
4106	K12
4108	L 9
5102	E 4
5103	F 4
5109	B13
5110	B14
5111	A13
5112	A15
5113	B12
5114	C16
5120	H13
5121	F15
5122	M11
5123	L11
5130	E 8
5131	D 8
6103	C 2
6104	C 3
6105	K12
6105	E 6
6106	C 6
6107	H17
6120	G16
6130	E 7
6131	D 7
7101	G11
7102	D 8
7103	I 9
7104	E 3
7105	F 2
7109	M 7
7111	F18
7119	B13
7122	M 9
7124	M13
7125	I16
9100	B 4
9101	C 6
9117	L10
9128	A 4

ELECTRICAL PARTSLIST ECO5 TUNER BOARD

MISCELLANEOUS

1101	4822 267 31505	ANTENNA SOCKET, 300Ω
1102	4822 267 10283	ANTENNA SOCKET, COAX IEC 75Ω

CAPACITORS

2101 ©	5322 122 32531	100pF	5%	50V	
2102 ©	4822 122 33177	10nF	20%	50V	
2103 ©	5322 122 34123	1nF	10%	50V	
2104	4822 122 33195	100pF	10%	50V	
2106	4822 125 60101	3-11pF TRIMCAP.			
2107	4822 121 51319	1µF	20%	50V	
2120 ©	5322 122 32658	22pF	5%	50V	
2125	4822 121 51381	560pF	1%	400V	
2126 ©	5322 122 31863	330pF	5%	50V	
2127 ©	4822 122 32927	220nF	10%	63V	
2127 ©	4822 126 13473	220nF	20%	50V	
2128	4822 124 41579	10µF	20%	50V	
2129	4822 124 41584	100µF	20%	10V	
2130	4822 126 11585	22nF	20%	50V	
2131 ©	4822 122 33325	470nF	20%	50V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 122 33325	470nF	20%	50V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 40242	1µF	20%	63V	
2134 ©	4822 122 33128	15nF	10%	63V	not for USA
2134 ©	5322 122 32654	22nF	10%	63V	for USA only
2135	4822 124 40746	0,22µF	20%	63V	
2136 ©	4822 122 33128	15nF	10%	63V	not for USA
2136 ©	5322 122 32654	22nF	10%	63V	for USA only
2137	4822 124 40746	0,22µF	20%	63V	
2138	4822 124 41576	2,2µF	20%	50V	
2139 ©	5322 122 32447	1pF	5%	50V	
2141 ©	4822 126 10002	100nF	20%	50V	
2142 ©	4822 126 10002	100nF	20%	50V	
2143 ©	4822 126 13473	220nF	20%	50V	
2144	4822 124 40242	1µF	20%	63V	
2145 ©	4822 122 33575	220pF	5%	50V	
2146 ©	4822 122 33575	220pF	5%	50V	
2147 ©	4822 122 33575	220pF	5%	50V	
2148	4822 126 11585	22nF	20%	50V	
2149 ©	5322 122 32654	22nF	10%	63V	
2150 ©	4822 122 31947	100nF	20%	50V	
2152 ©	4822 122 33342	33nF	10%	63V	not for East Europe
2152 ©	5322 116 80853	560pF	5%	63V	for East Europe only
2153 ©	4822 122 32139	12pF	5%	63V	for East Europe only
2153 ©	5322 122 32481	15pF	5%	50V	not for East Europe
2155	4822 125 60101	3-11pF TRIMCAP.			
2159 ©	5322 122 32659	33pF	5%	50V	
2160 ©	5322 122 32654	22nF	10%	63V	
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 10002	100nF	20%	50V	
2166 ©	5322 122 34123	1nF	10%	50V	
2167 ©	4822 122 32139	12pF	5%	63V	

RESISTORS

3101 ©	4822 051 20333	33kΩ	5%	0,1W	not for East Europe
3101 ©	4822 051 20562	5,6kΩ	5%	0,1W	for East Europe only
3102 ©	4822 051 20104	100kΩ	5%	0,1W	
3103 ©	4822 051 20183	18kΩ	5%	0,1W	
3104 ©	4822 117 11448	180Ω	10%	0,1W	
3105	4822 116 83872	220Ω	5%	0,5W	
3110	4822 116 52195	47Ω	5%	0,5W	
3120 ©	4822 051 20008	CHIP JUMPER 0805			

RESISTORS

3132	4822 116 52195	47Ω	5%	0,5W	
3134 ©	4822 051 20224	220kΩ	5%	0,1W	
3140 ©	4822 051 20008	CHIP JUMPER 0805			5120=CDA10.7MG40K
3140 ©	4822 117 10353	150Ω	5%	0,1W	5120=CDA10.7MG61KA
3141 ©	4822 051 20563	56kΩ	5%	0,1W	
3142	4822 100 11163	100kΩ TRIMPOT. LIN.			
3143 ©	4822 051 20223	22kΩ	5%	0,1W	for RDS version only
3144 ©	4822 051 10102	1kΩ	5%	0,1W	for RDS version only
3145 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3152	4822 116 83883	470Ω	5%	0,16W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154	4822 116 83868	150Ω	5%	0,5W	
3155 ©	4822 051 20471	470Ω	5%	0,1W	
3156 ©	4822 051 20104	100kΩ	5%	0,1W	for /21/30/33 only
3157	4822 116 52234	100kΩ	5%	0,5W	for East Europe only
3158	4822 116 83883	470Ω	5%	0,16W	
3159	4822 116 83883	470Ω	5%	0,16W	
3160	4822 116 83883	470Ω	5%	0,16W	
3161	4822 116 83883	470Ω	5%	0,16W	
3167 ©	4822 117 11503	220Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170	4822 116 52234	100kΩ	5%	0,5W	
3171	4822 116 52219	330Ω	5%	0,5W	
3176 ©	4822 051 10102	1kΩ	5%	0,1W	for RDS version only
4101 ©	4822 051 20008	CHIP JUMPER 0805			
4102 ©	4822 051 20008	CHIP JUMPER 0805			
4103 ©	4822 051 20008	CHIP JUMPER 0805			
4104 ©	4822 051 20008	CHIP JUMPER 0805			
4105 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4108 ©	4822 051 20008	CHIP JUMPER 0805			
4111 ©	4822 051 20008	CHIP JUMPER 0805			
4120 ©	4822 051 20008	CHIP JUMPER 0805			
4150 ©	4822 051 10008	CHIP JUMPER 1206			
4152 ©	4822 051 10008	CHIP JUMPER 1206			
4153 ©	4822 051 10008	CHIP JUMPER 1206			
4154 ©	4822 051 10008	CHIP JUMPER 1206			
4157 ©	4822 051 10008	CHIP JUMPER 1206			
4158 ©	4822 051 10008	CHIP JUMPER 1206			
4159 ©	4822 051 10008	CHIP JUMPER 1206			
4162 ©	4822 051 10008	CHIP JUMPER 1206			for RDS version only

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	CER. FILTER 10,7MHZ
5110	4822 242 70665	CER. FILTER 10,7MHZ
5111	4822 158 60511	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 70302	AM-IF FILTER 450kHz (AM AFC)
5120	4822 242 10251	CER. DISCRIMINATOR 10.7MG61KA-TF21
5120	4822 242 82065	CER. DISCRIMINATOR 10.7MG40K
5121	4822 242 10261	QUARTZ 75kHz
5123	4822 157 60517	OSC. COIL MW
5130	4822 156 30947	RF COIL 1,5 TURNS
5131	4822 156 30947	RF COIL 1,5 TURNS

ELECTRICAL PARTSLIST ECO5 TUNER BOARD

DIODES

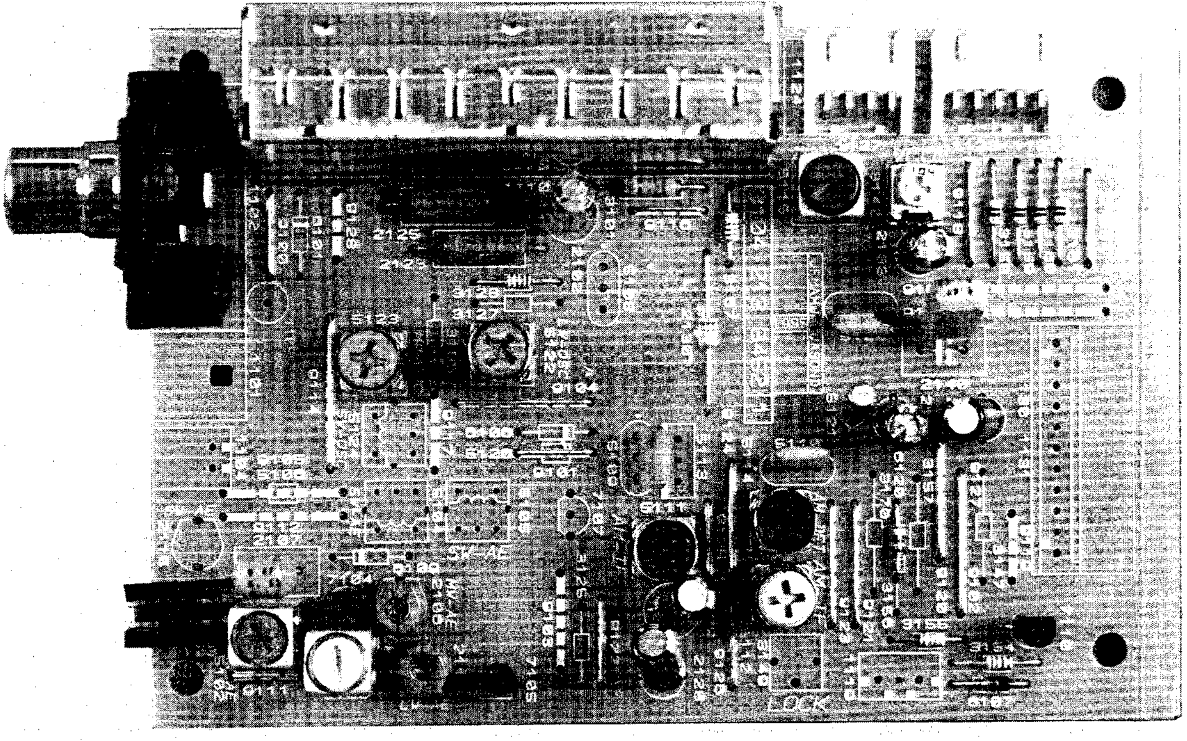
6103	4822 130 30621	1N4148	
6104	4822 130 30621	1N4148	
6105 ©	4822 130 83075	HN1V02H	
6106	4822 130 30621	1N4148	
6107	4822 130 34488	BZX79-C11	
6120	4822 130 30621	1N4148	not for /21/30/33
6130 ©	4822 130 82833	1SV228	
6131 ©	4822 130 82833	1SV228	

TRANSISTORS

7102	4822 130 60093	2SA838B	
7103 ©	4822 130 42513	BC558C	for RDS version only
7111 ©	5322 130 42136	BC848C	

INTEGRATED CIRCUITS

7101 ©	4822 209 90924	TEA5757H/V1, RADIO IC

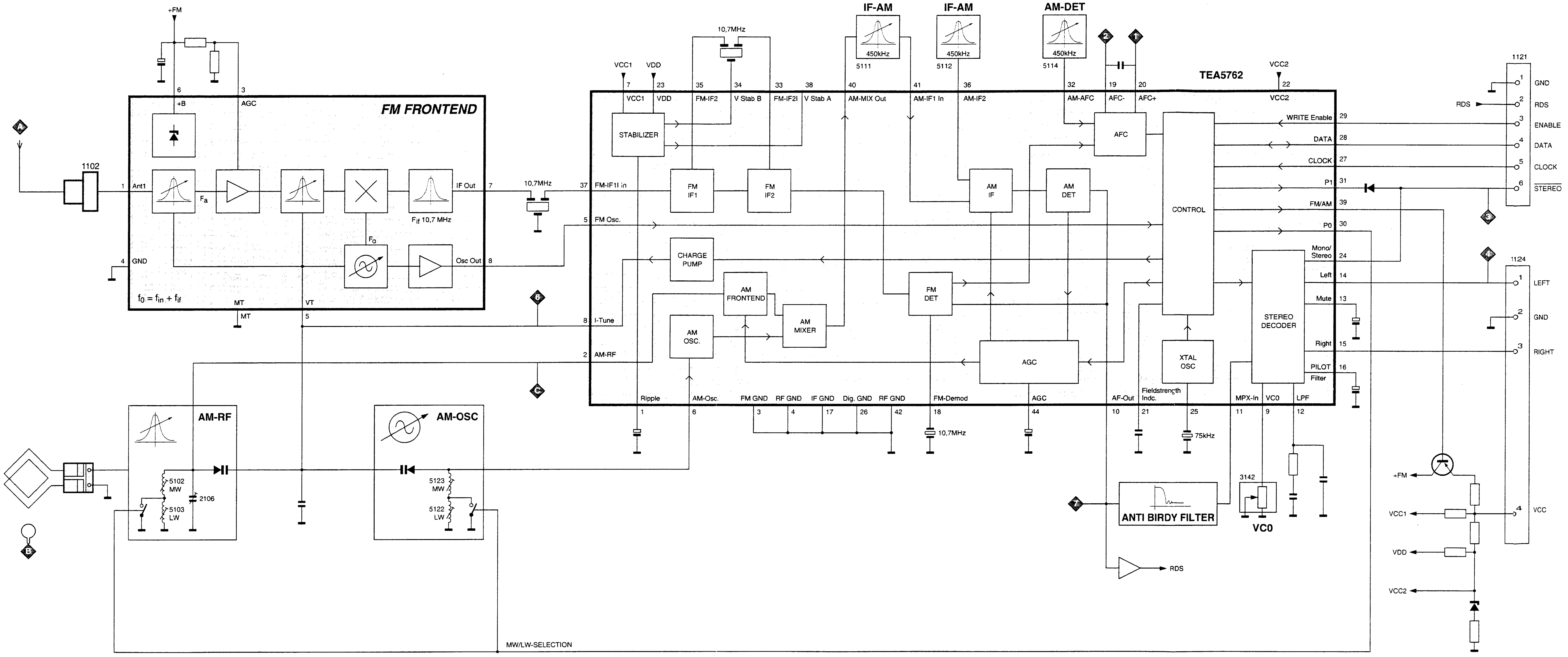


TUNER 95 BOARD

TABLE OF CONTENTS

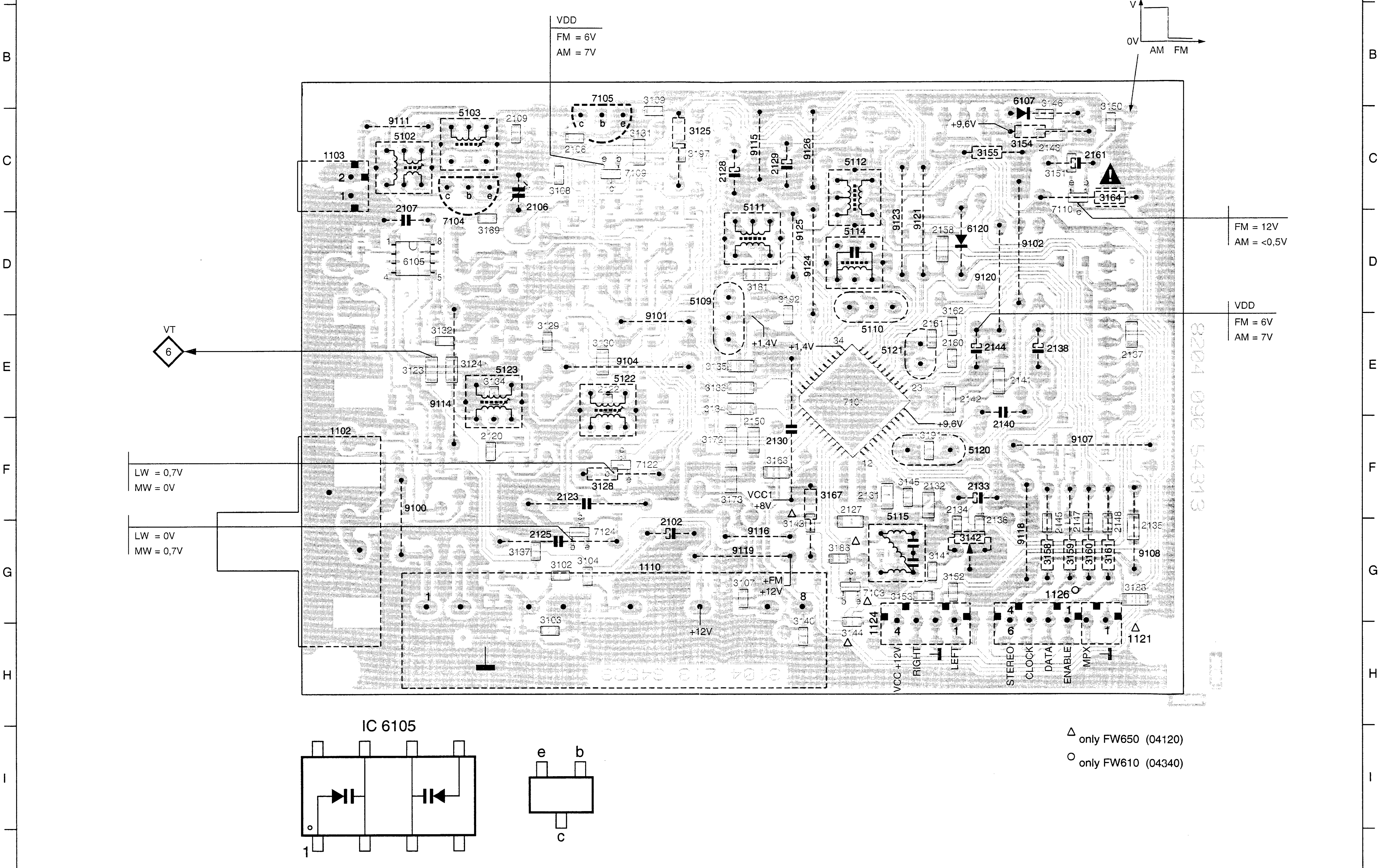
Blockdiagram 7D-1
Adjustmant table 7D-2
Component layout...7D-2
Circuit diagram..7D-3
Partslist 7D-4

BLOCKDIAGRAM



FM FRONTEND
+FM
+B
AGC
1102
Ant1
GND
IF Out
Osc Out
Fif 10,7 MHz
f0 = fin + fif
MT
VT
10,7MHz
TEA5762
VCC1
VDD
VCC2
STABILIZER
FM IF1
FM IF2
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AM IF
AM DET
AGC
AFC
CONTROL
STEREO DECODER
XTAL OSC
FM-IF1 In
FM Osc.
I-Tune
AM-RF
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VCO
LPF
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/ Stereo
Left
Mute
Right
PILOT Filter
IF-AM
IF-AM
AM-DET
450kHz
5111
5112
5114
75kHz
AM-RF
AM-OSC
5102 MW
5103 LW
2106
5123 MW
5122 LW
ANTI BIRDY FILTER
VCO
3142
RDS
MW/LW-SELECTION
1121
GND
RDS
ENABLE
DATA
CLOCK
STEREO
1124
LEFT
GND
RIGHT
VCC
+FM
VCC1
VDD
VCC2
A
B
C
1
2
3
4
5
6
7

TUNER 95 – Copperside view

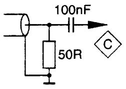

VDD
FM = 6V
AM = 7V
V
0V
AM FM
FM = 12V
AM = <0,5V
VDD
FM = 6V
AM = 7V
VT
6
LW = 0,7V
MW = 0V
LW = 0V
MW = 0,7V
1103
1102
1110
1124
1126
1121
6105
7104
7105
7109
7110
7122
7124
5102
5103
5109
5110
5111
5112
5114
5115
5120
5121
5122
5123
6107
6120
7101
+9,6V
+1,4V
VCC1
+8V
+FM
+12V
VCC +12V
RIGHT
LEFT
STEREO
CLOCK
DATA
ENABLE
MPX
IC 6105
1
e
b
c

△ only FW650 (04120)

○ only FW610 (04340)

1102	F4	3181	D8
1103	C3	3183	E7
1110	G7	3184	E7
1121	H11	3185	E7
1124	H9	3186	G8
1126	G10	3188	G11
2102	G7	3191	F9
2106	C5	3192	D8
2107	D4	3197	C7
2108	C6	5102	C4
2109	C5	5103	C5
2120	F5	5109	D7
2122	E6	5110	E9
2123	F6	5111	C8
2125	G5	5112	C9
2127	F8	5114	D9
2128	C7	5115	G9
2129	C8	5120	F10
2130	F8	5121	E9
2131	F9	5122	E6
2132	F9	5123	E5
2133	F10	6105	D4
2134	F9	6107	B10
2135	G11	6120	D10
2136	G10	7101	E9
2137	E11	7103	G9
2138	E10	7104	D5
2140	F10	7105	B6
2141	E10	7109	C6
2142	E10	7110	D11
2143	C10	7122	F7
2144	E10	7124	G6
2145	G11	9100	F4
2147	G11	9101	E7
2148	G11	9102	D10
2150	F8	9104	E6
2158	D9	9107	F11
2160	E9	9108	G11
2161	E9	9111	C4
2161	C11	9114	E5
3102	G6	9115	C8
3103	H6	9116	G8
3104	G6	9118	G10
3107	G7	9119	G7
3108	C6	9120	D10
3109	B7	9121	D9
3123	E4	9123	D9
3124	E5	9124	D8
3125	C7	9125	D8
3128	F6	9126	C8
3129	E6		
3130	E6		
3131	C6		
3132	E5		
3134	E5		
3137	G5		
3140	H8		
3141	G9		
3142	G10		
3143	G8		
3144	H8		
3145	F9		
3146	B10		
3150	C11		
3151	C10		
3152	G9		
3153	G9		
3154	C10		
3155	C10		
3158	G10		
3159	G11		
3160	G11		
3161	G11		
3162	E9		
3163	F8		
3164	C11		
3167	F8		
3169	D5		
3172	F7		
3173	F7		

ADJUSTMENT TABLE

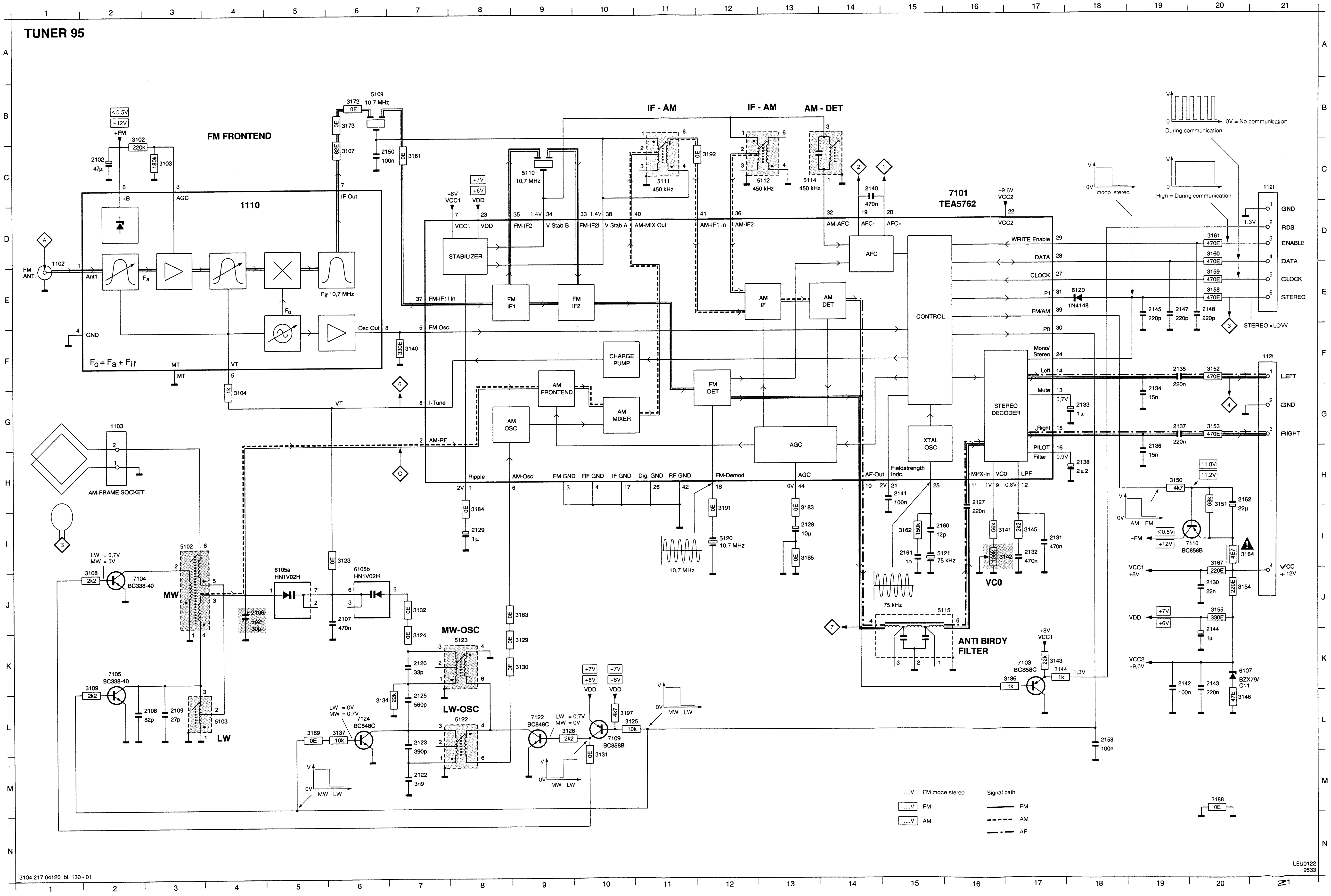
Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	◇6	7...9V
			87.5MHz	check		1.3...2V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8.3V ±0.2V
			531kHz	check		1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8.3V ±0.2V
			153kHz	check		1V ±0.4V
FM - VCO						
FM	98MHz 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz
DISTORTION						
FM	98MHz 1mV 90% L, 9% pilot mod=1kHz	◇A	98MHz	mixcoil inside tuner 1110	◇4	min. distortion
AM IF						
MW	450kHz Δf=10kHz as low as possible			5111	◇7	symmetrical and max. height ↕
				5112		
	450.0kHz continuous wave	◇C		5114	◇1 ◇2	0mV ±2mV
AM RF						
MW	588kHz mod=1kHz, 30% AM 1494kHz	◇B*	558kHz	5102	◇7	MAX ↕
			1494kHz	2106		
LW	198kHz mod=1kHz, 30% AM		198kHz	5103		MAX

* Signal supplied via frame antenna

↕ Repeat

1102	D1
1103	G2
1110	D4
1121	C21
1124	F21
2102	C2
2106	J4
2107	J6
2108	L3
2109	L3
2120	K7
2122	M7
2123	L7
2125	L7
2127	H16
2128	I13
2129	I8
2130	J20
2131	I17
2132	I17
2133	G18
2134	G19
2135	F19
2136	H19
2137	G19
2138	H18
2140	C14
2141	H15
2142	K19
2143	K20
2144	K20
2145	E19
2147	E19
2148	E20
2150	C6
2158	L18
2160	I15
2161	I15
2162	H20
3102	B2
3103	C3
3104	G4
3107	C6
3108	J2
3109	K2
3123	I6
3124	K7
3125	L10
3128	L9
3129	K9
3130	K9
3131	M10
3132	J7
3134	L6
3137	L6
3140	F7
3141	I16
3142	I16
3143	K17
3144	K17
3145	I17
3146	L20
3150	H19
3151	I20
3152	F20
3153	G20
3154	J20
3155	J20
3158	E20
3159	E20
3160	D20
3161	D20
3162	I15
3163	J9
3164	I20
3167	I20
3169	L5
3172	B6
3173	B6
3181	C7
3183	I13
3184	I8
3185	I13
3186	K16
3188	M20
3191	I12
3192	C12
3197	L10
5102	I3
5103	L4
5109	B6
5110	C9
5111	C11
5112	C12
5114	C13
5115	J15
5120	I12
5121	I15
5122	L8
5123	K8
6105a	I5
6105b	I6
6107	K20
6120	E18
7101	C16
7103	K17
7104	J2
7105	K2
7109	L10
7110	I19
7122	L9
7124	L6

TUNER 95


FM FRONTEND
1110
<0.5V
+12V
+FM
3102 220k
3103 180k
2102 47µ
+B
AGC
IF Out
FM ANT.
1102
Ant1
Fa
Fif 10,7 MHz
Fo
Osc Out
GND
MT
VT
Fo = Fa + Fif
3104 1k
3140 330E
5109 10,7 MHz
3172 0E
3173 0E
3107 82E
2150 100n
3181 0E
IF - AM
IF - AM
AM - DET
5110 10,7 MHz
5111 450 kHz
5112 450 kHz
5114 450 kHz
3192 0E
2140 470n
7101
TEA5762
+8V VCC1
+7V
+6V
VDD
+9,6V VCC2
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
FM-IF1I In
FM Osc.
I-Tune
AM-RF
STABILIZER
FM IF1
FM IF2
AM IF
AM DET
AFC
CONTROL
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AGC
XTAL OSC
STEREO DECODER
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VCO
LPF
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/ Stereo
Left
Mute
Right
PILOT Filter
6120 1N4148
3161 470E
3160 470E
3159 470E
3158 470E
2145 220p
2147 220p
2148 220p
1121
GND
RDS
ENABLE
DATA
CLOCK
STEREO
1.3V
STEREO =LOW
0V = No communication
During communication
High = During communication
mono stereo
1124
LEFT
GND
RIGHT
2135 220n
3152 470E
2134 15n
2133 1µ
2137 220n
3153 470E
2136 15n
2138 2µ2
3150 4k7
3151 68k
2162 22µ
11.8V
11.2V
AM FM
<0,5V
+12V
+FM
7110 BC858B
3164 4E7
3167 220E
VCC1 +8V
2130 22n
3154 220E
VCC +12V
VDD
3155 330E
2144 1µ
VCC2 +9,6V
2142 100n
2143 220n
6107 BZX79/ C11
3146 47E
3188 0E
2158 100n
7103 BC858C
+8V VCC1
3143 22k
3144 1k
1,3V
3186 1k
ANTI BIRDY FILTER
5115
75 kHz
2127 220n
3141 56k
3142 100k
VCO
3145 2k2
2131 470n
2132 470n
3162 150k
2160 12p
2161 1n
5121 75 kHz
2141 100n
3183 0E
2128 10µ
3185 0E
3191 0E
5120 10,7 MHz
10,7 MHz
3184 0E
2129 1µ
1103
AM-FRAME SOCKET
LW = 0,7V
MW = 0V
3108 2k2
7104 BC338-40
MW
5102
2106 5p2-30p
6105a HN1V02H
6105b HN1V02H
3123 0E
2107 470n
3132 0E
3124 0E
MW-OSC
5123
2120 33p
3134 22k
2125 560p
LW-OSC
5122
2123 390p
2122 3n9
7105 BC338-40
3109 2k2
2108 82p
2109 27p
5103
LW
LW = 0V
MW = 0,7V
7124 BC848C
3169 0E
3137 10k
MW LW
3163 0E
3129 0E
3130 0E
7122 BC848C
LW = 0,7V
MW = 0V
3128 2k2
3131 0E
7109 BC858B
3197 4k7
3125 10k
.....V FM mode stereo
.....V FM
.....V AM
Signal path
FM
AM
AF

3104 217 04120 bl. 130 - 01

LEU0122
9533

MISCELLANEOUS

1102	4822 267 10283	SOCKET COAX IEC 75R
1103	4822 265 31184	JST CONNECTOR 2 POLE
1110	4822 210 10492	FRONTEND ASSY /02/08

DIODES

6105	4822 130 83075	HN1V02H
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148

TRANSISTORS

7103	4822 130 42513	BC858C
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7110	5322 130 41983	BC858B
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1

COILS

5102	4822 157 71634	RF-COIL MW
5103	4822 157 71635	RF-COIL LW
5109	4822 157 71639	CER. FILTER 10,7MHz
5110	4822 242 70665	CER. FILTER 10,7MHZ
5111	4822 158 60511	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 71637	AM-AFC FILTER 450KHZ
5115	4822 157 71636	ANTI-BIRDY FILTER
5120	4822 242 82065	CER. DISCRIMINATOR
5121	4822 242 81021	QUARTZ 75kHz
5122	4822 157 60517	RF-COIL AM
5123	4822 157 60517	RF-COIL AM

RESISTORS

3125	4822 116 83864	10k	5%	0,5W
3128	4822 116 52256	2k2	5%	0,16W
3142	4822 100 11163	TRIMPOT. 100K LIN.		
3154	4822 116 52215	220R	5%	0,16W
3155	4822 116 52219	330R	5%	0,5W
3158	4822 116 52224	470R	5%	0,5W
3159	4822 116 52224	470R	5%	0,5W
3160	4822 116 52224	470R	5%	0,5W
3161	4822 116 52224	470R	5%	0,5W
3164	4822 052 10478	4R7	5%	NFR
3167	4822 116 52215	220R	5%	0,16W

CHIP RESISTORS

3102	4822 051 20224	220k	5%	0,1W
3103	4822 051 20184	180k	5%	0,1W
3104	4822 051 10102	1k	2%	0,25W
3107	4822 051 20829	82R	5%	0,1W
3108	4822 051 20222	2k2	5%	0,1W
3109	4822 051 20222	2k2	5%	0,1W
3123	4822 051 10008	CHIP JUMPER 1206		
3124	4822 051 10008	CHIP JUMPER 1206		
3129	4822 051 20008	CHIP JUMPER 0805		
3130	4822 051 10008	CHIP JUMPER 1206		
3131	4822 051 10008	CHIP JUMPER 1206		
3132	4822 051 20008	CHIP JUMPER 0805		
3134	4822 051 20223	22k	5%	0,1W
3137	4822 051 20103	10k	5%	0,1W
3140	4822 051 20331	330R	5%	0,1W
3141	4822 051 20563	56k	5%	0,1W
3143	4822 051 20223	22k	5%	0,1W
3144	4822 051 10102	1k	2%	0,25W
3145	4822 051 20222	2k2	5%	0,1W
3146	4822 051 20479	47R	5%	0,1W
3150	4822 051 20472	4k7	5%	0,1W
3151	4822 051 20683	68k	5%	0,1W
3152	4822 051 20471	470R	5%	0,1W
3153	4822 051 20471	470R	5%	0,1W
3162	4822 051 20154	150k	5%	0,1W
3163	4822 051 10008	CHIP JUMPER 1206		
3169	4822 051 20008	CHIP JUMPER 0805		
3172	4822 051 10008	CHIP JUMPER 1206		
3173	4822 051 10008	CHIP JUMPER 1206		
3181	4822 051 10008	CHIP JUMPER 1206		
3183	4822 051 10008	CHIP JUMPER 1206		
3184	4822 051 10008	CHIP JUMPER 1206		
3185	4822 051 10008	CHIP JUMPER 1206		
3186	4822 051 10102	1k	2%	0,25W
3188	4822 051 10008	CHIP JUMPER 1206		
3191	4822 051 20008	CHIP JUMPER 0805		
3192	4822 051 20008	CHIP JUMPER 0805		
3197	4822 051 20472	4k7	5%	0,1W

CAPACITORS

2102	4822 124 40433	47µF	20%	25V
2106	4822 125 60102	30pF		VARIABLE
2107	4822 121 51252	470nF	5%	63V
2123	4822 121 51254	390pF	1%	400V
2125	4822 121 51381	560pF	1%	400V
2128	4822 124 41579	10µF	20%	50V
2129	4822 124 40242	1µF	20%	63V
2130	4822 126 11585	22nF	20%	50V
2133	4822 124 40242	1µF	20%	63V
2138	4822 124 41576	2,2µF	20%	50V
2140	4822 121 51252	470nF	5%	63V
2144	4822 124 40242	1µF	20%	63V
2162	4822 124 41596	22µF	20%	50V

CHIP CAPACITORS

2108	4822 122 33515	82pF	5%	50V
2109	5322 122 31946	27pF	5%	50V
2120	5322 122 32659	33pF	5%	50V
2122	5322 126 10465	3,9nF	10%	63V
2127	4822 122 32927	220nF	10%	63V
2131	4822 122 33325	470nF	20%	50V
2132	4822 122 33325	470nF	20%	50V
2134	4822 122 33128	15nF	10%	63V
2135	4822 122 32927	220nF	10%	63V
2136	4822 122 33128	15nF	10%	63V
2137	4822 122 32927	220nF	10%	63V
2141	4822 122 31947	100nF	20%	50V
2142	4822 122 31947	100nF	20%	50V
2143	4822 122 32927	220nF	10%	63V
2145	4822 122 33575	220pF	5%	50V
2147	4822 122 33575	220pF	5%	50V

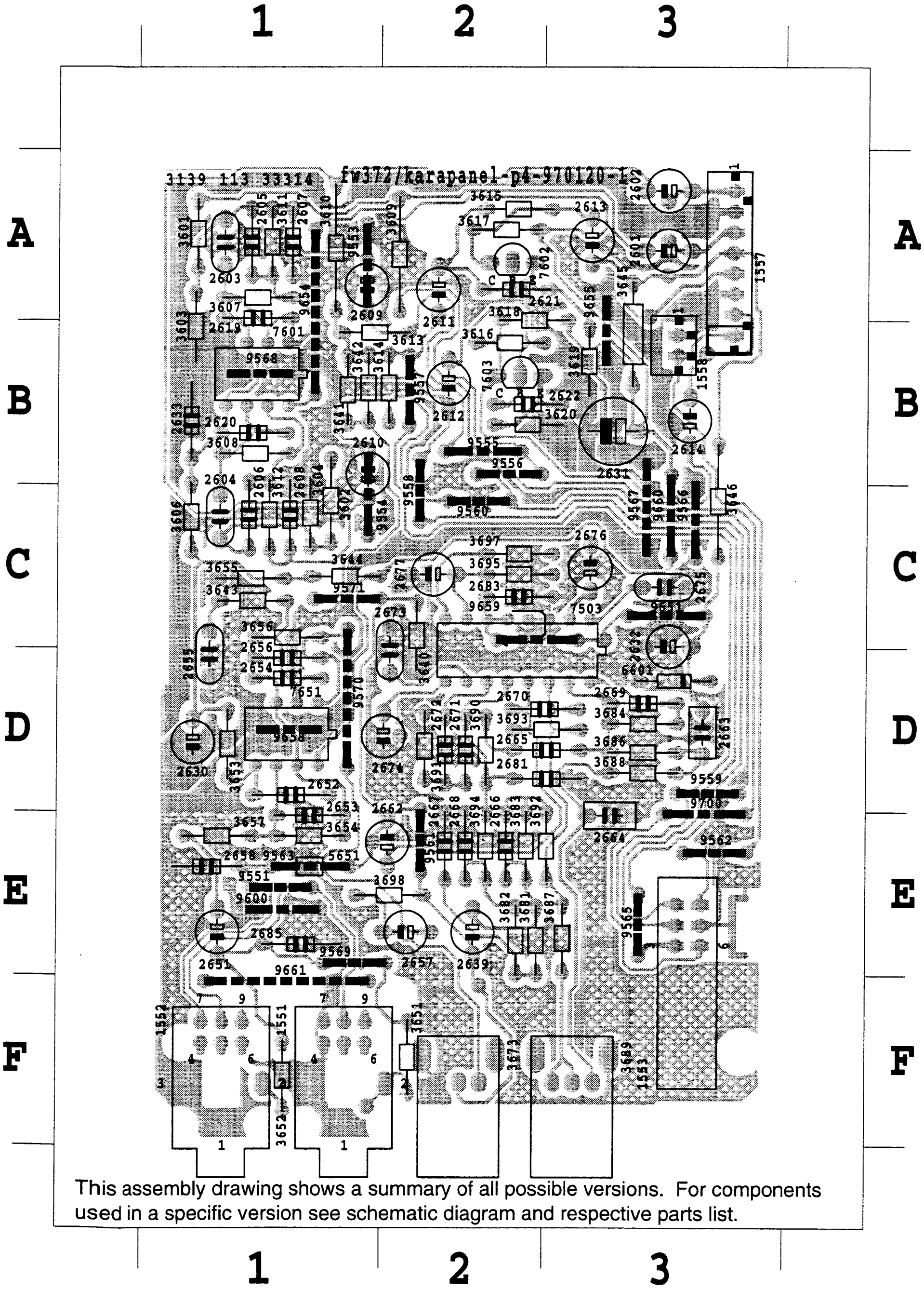
CHIP CAPACITORS

2148	4822 122 33575	220pF	5%	50V
2150	4822 122 31947	100nF	20%	50V
2158	4822 122 31947	100nF	20%	50V
2160	4822 122 32139	12pF	5%	63V
2161	5322 122 34123	1nF	10%	50V

KARAOKE BOARD

Component Layout .... 8 - 2
Circuit Diagram .... 8 - 3
Partlist .... 8 - 4

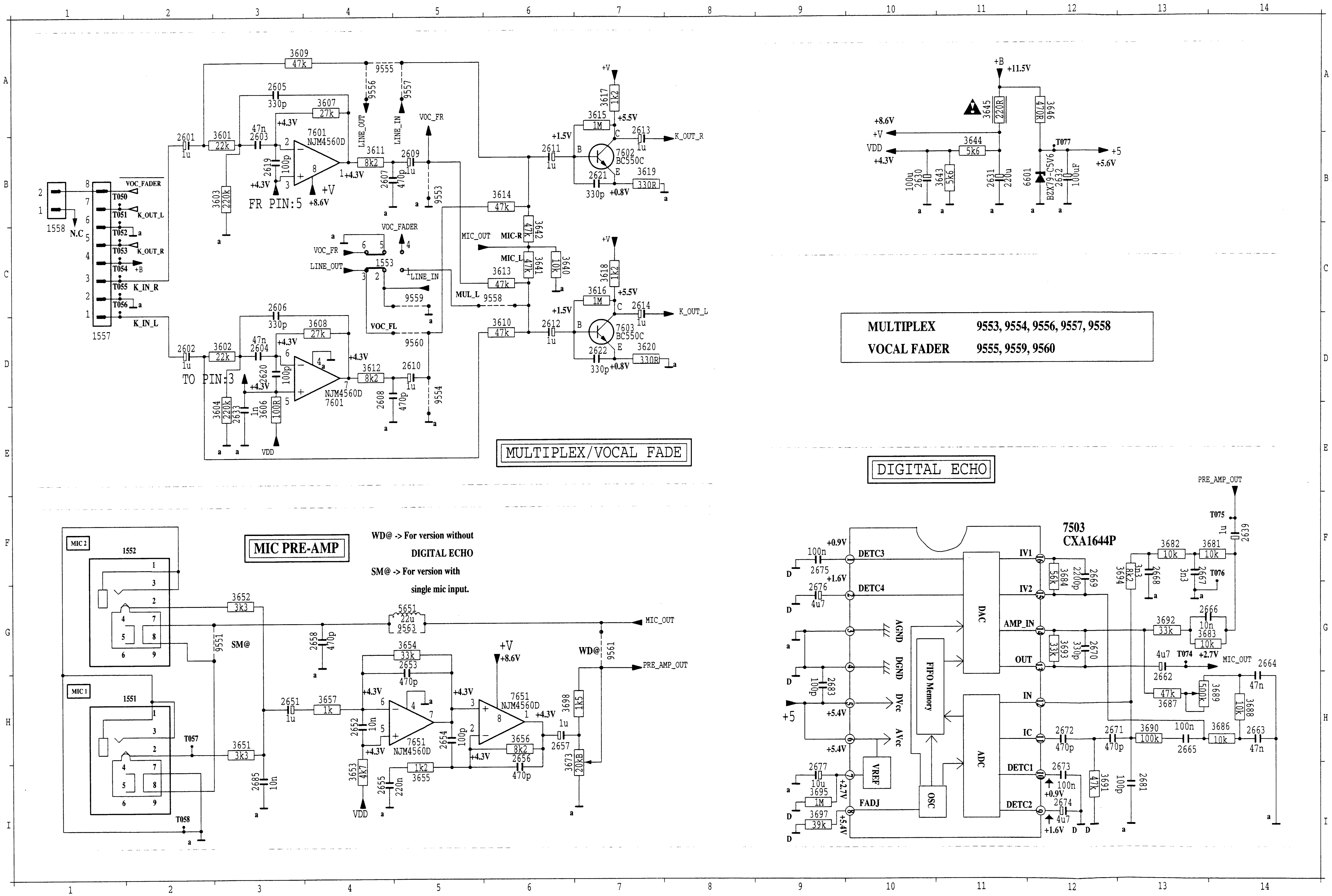
COMPONENT LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1551	F	1
1552	F	1
1553	E	3
1557	A	3
1558	B	3
2601	A	3
2602	A	3
2603	A	1
2604	C	1
2605	A	1
2606	C	1
2607	A	1
2608	C	1
2609	A	1
2610	B	1
2611	A	2
2612	B	2
2613	A	3
2614	B	3
2619	A	1
2620	B	1
2621	A	2
2622	B	2
2630	D	1
2631	B	3
2632	C	3
2633	B	1
2639	E	2
2651	E	1
2652	D	1
2653	E	1
2654	D	1
2655	D	1
2656	D	1
2657	E	2
2658	E	1
2662	E	2
2663	D	3
2664	E	3
2665	D	3
2666	E	2
2667	E	2
2668	E	2
2669	D	3
2670	D	3
2671	D	2
2672	D	2
2673	D	2
2674	D	2
2675	C	3
2676	C	3
2677	C	2
2681	D	3
2683	C	2
2685	E	1
3601	A	1
3602	C	1
3603	B	1
3604	C	1
3606	C	1
3607	A	1
3608	B	1
3609	A	2
3610	A	1
3611	A	1
3612	C	1
3613	B	1
3614	B	2
3615	A	2
3616	B	2
3617	A	2
3618	B	2
3619	B	3
3620	B	2
3640	C	2
3641	B	1
3642	B	1
3643	C	1
3644	C	1
3645	B	3
3646	C	3
3651	F	2
3652	F	1
3653	D	1
3654	E	1
3655	C	1
3656	C	1
3657	E	1
3673	F	2
3681	E	2
3682	E	2
3683	E	2
3684	D	3
3686	D	3
3687	E	3
3688	D	3
3689	F	3
3690	D	2
3691	D	2
3692	E	3
3693	D	3
3694	E	2
3695	C	2
3697	C	2
3698	E	2
5651	E	1
6601	D	3
7503	D	2
7601	B	1
7602	A	2
7603	B	2
7651	D	1
9551	E	1
9553	A	1
9554	C	1
9555	B	2
9556	B	2
9557	B	2
9558	C	2
9559	D	3
9560	C	2
9561	E	2
9562	E	3
9563	E	1
9565	E	3
9566	C	3
9567	C	3
9568	B	1
9569	E	1
9570	D	1
9571	C	1
9600	E	1
9651	C	3
9654	A	1
9655	B	3
9658	D	1
9659	C	2
9660	C	3
9661	F	1
9700	E	3

KARAOKE CIRCUIT


MULTIPLEX/VOCAL FADE
MIC PRE-AMP
DIGITAL ECHO
MULTIPLEX 9553, 9554, 9556, 9557, 9558
VOCAL FADER 9555, 9559, 9560
WD@ -> For version without DIGITAL ECHO
SM@ -> For version with single mic input.
7601 NJM4560D
7602 BC550C
7603 BC550C
7651 NJM4560D
7503 CXA1644P
FR PIN:5
TO PIN:3
K_OUT_R
K_OUT_L
K_IN_R
K_IN_L
VOC_FADER
VOC_FR
VOC_FL
LINE_OUT
LINE_IN
MIC_OUT
MIC-R
MIC_L
MUL_L
PRE_AMP_OUT
MIC 1
MIC 2
1551
1552
1553
1557
1558
DETC3
DETC4
AGND
DGND
DVcc
AVcc
FADJ
VREF
OSC
FIFO Memory
DAC
ADC
IV1
IV2
AMP_IN
OUT
IN
IC
DETC1
DETC2
BZX79-C5V6
+8.6V
+4.3V
+11.5V
+5.6V
VDD

1551	H 2
1552	F 2
1553	C 4
1557	D 1
1558	B 1
2601	B 2
2602	D 2
2603	B 3
2604	D 3
2605	A 3
2606	C 3
2607	B 4
2608	D 4
2609	B 5
2610	D 5
2611	B 6
2612	D 6
2613	A 7
2614	C 7
2619	B 3
2620	D 3
2621	B 7
2622	D 7
2630	B10
2631	B11
2632	B12
2633	E 3
2639	F14
2651	H 3
2652	H 4
2653	G 5
2654	H 5
2655	I 4
2656	H 6
2657	H 6
2658	G 4
2662	H13
2663	H14
2664	G14
2665	H13
2666	G14
2667	F13
2668	F13
2669	F12
2670	G12
2671	H12
2672	H12
2673	I12
2674	I12
2675	F 9
2676	G 9
2677	I 9
2681	I13
2683	H 9
2685	I 3
3601	B 3
3602	D 3
3603	B 3
3604	E 3
3606	E 3
3607	A 4
3608	D 4
3609	A 3
3610	D 6
3611	B 4
3612	D 4
3613	C 6
3614	B 6
3615	A 7
3616	C 7
3617	A 7
3618	C 7
3619	B 7
3620	D 7
3640	C 6
3641	C 6
3642	C 6
3643	B11
3644	B11
3645	A11
3646	A12
3651	H 3
3652	G 3
3653	I 4
3654	G 5
3655	I 5
3656	H 6
3657	H 4
3673	H 6
3681	F14
3682	F13
3683	G13
3684	F12
3686	H14
3687	H13
3688	H14
3689	H14
3690	H13
3691	I12
3692	G13
3693	G12
3694	F12
3695	I 9
3697	I 9
3698	H 6
5651	G 5
6601	B12
7503	F12
7601	A 4
7601	D 4
7602	B 7
7603	D 7
7651	H 6
7651	H 5
9551	G 2
9553	B 5
9554	D 5
9555	A 4
9556	A 4
9557	A 5
9558	C 6
9559	C 5
9560	D 5
9561	G 7
9563	G 5

ELECTRICAL PARTS LIST - KARAOKE BOARD

MISCELLANEOUS

1551	4822 267 40898	Mic Socket
1552	4822 267 40898	Mic Socket
1553	4822 276 12571	Vocal Fader Switch

CAPACITORS

2601	4822 124 40242	1µF 20% 63V
2602	4822 124 40242	1µF 20% 63V
2603	4822 121 43526	47nF 5% 250V
2604	4822 121 43526	47nF 5% 250V
2605	4822 126 12787	330pF 10% 50V
2606	4822 126 12787	330pF 10% 50V
2607	4822 122 33519	470pF 10% 50V
2608	4822 122 33519	470pF 10% 50V
2609	4822 124 40242	1µF 20% 63V
2610	4822 124 40242	1µF 20% 63V
2611	4822 124 40242	1µF 20% 63V
2612	4822 124 40242	1µF 20% 63V
2613	4822 124 40242	1µF 20% 63V
2614	4822 124 40242	1µF 20% 63V
2619	4822 122 33195	100pF 10% 50V
2620	4822 122 33195	100pF 10% 50V
2621	4822 126 12787	330pF 10% 50V
2622	4822 126 12787	330pF 10% 50V
2630	4822 124 41584	100µF 20% 10V
2631	4822 124 80144	220µF 20% 25V
2632	4822 124 41584	100µF 20% 10V
2633	4822 122 33197	1nF 10% 50V
2639	4822 124 40242	1µF 20% 63V
2651	4822 124 40242	1µF 20% 63V
2652	4822 121 51387	10nF 20% 16V
2653	4822 122 33519	470pF 10% 50V
2654	4822 122 33195	100pF 10% 50V
2655	4822 121 42408	220nF 5% 63V
2656	4822 122 33519	470pF 10% 50V
2657	4822 124 40242	1µF 20% 63V
2658	4822 122 33519	470pF 10% 50V
2662	4822 124 40246	4,7µF 20% 63V
2663	4822 121 43526	47nF 5% 250V
2664	4822 121 43526	47nF 5% 250V
2665	4822 126 12882	100nF +80-20% 50V
2666	4822 121 51387	10nF 20% 16V
2667	4822 122 10577	3,3nF 10% 16V
2668	4822 122 10577	3,3nF 10% 16V
2669	4822 126 12339	2,2nF 10%
2670	4822 126 12787	330pF 10% 50V
2671	4822 122 33519	470pF 10% 50V
2672	4822 122 33519	470pF 10% 50V
2673	5322 121 42386	100nF 5% 63V
2674	4822 124 40246	4,7µF 20% 63V
2675	5322 121 42386	100nF 5% 63V
2676	4822 124 40246	4,7µF 20% 63V
2677	4822 124 41579	10µF 20% 50V
2681	4822 122 33195	100pF 10% 50V
2683	4822 122 33195	100pF 10% 50V
2685	4822 121 51387	10nF 20% 16V

RESISTORS

3601	4822 116 52257	22k 5% 0,5W
3602	4822 116 52257	22k 5% 0,5W
3603	4822 116 83874	220k 5% 0,5W
3604	4822 116 83874	220k 5% 0,5W
3606	4822 116 52175	100R 5% 0,5W
3607	4822 116 52264	27k 5% 0,5W
3608	4822 116 52264	27k 5% 0,5W
3609	4822 116 83884	47k 5% 0,5W
3610	4822 116 83884	47k 5% 0,5W
3611	4822 116 52303	8k2 5% 0,5W
3612	4822 116 52303	8k2 5% 0,5W
3613	4822 116 83884	47k 5% 0,5W
3614	4822 116 83884	47k 5% 0,5W
3615	4822 116 52235	1M 5% 0,5W
3616	4822 116 52235	1M 5% 0,5W
3617	4822 116 52207	1k2 5% 0,5W
3618	4822 116 52207	1k2 5% 0,5W
3619	4822 116 52219	330R 5% 0,5W
3620	4822 116 52219	330R 5% 0,5W
3640	4822 116 83864	10k 5% 0,5W
3641	4822 116 83884	47k 5% 0,5W
3642	4822 116 83884	47k 5% 0,5W
3643	4822 116 52289	5k6 5% 0,5W
3644	4822 116 52289	5k6 5% 0,5W
3645	4822 052 10221 ⚠	220R 5% 0,33W
3646	4822 116 83883	470R 5% 0,5W
3651	4822 116 52269	3k3 5% 0,5W
3652	4822 116 52269	3k3 5% 0,5W
3653	4822 116 52283	4k7 5% 0,5W
3654	4822 116 52271	33k 5% 0,5W
3655	4822 116 52207	1k2 5% 0,5W
3656	4822 116 52303	8k2 5% 0,5W
3657	4822 050 11002	1k 1% 0,4W
3673	4822 101 21204	Rotary Potm 20kA
3681	4822 116 83864	10k 5% 0,5W
3682	4822 116 83864	10k 5% 0,5W
3683	4822 116 83864	10k 5% 0,5W
3684	4822 116 52291	56k 5% 0,5W
3686	4822 116 83864	10k 5% 0,5W
3687	4822 116 83884	47k 5% 0,5W
3688	4822 116 83864	10k 5% 0,5W
3689	4822 101 11326	Rotary Potm 500k
3690	4822 116 52234	100k 5% 0,5W
3691	4822 116 83884	47k 5% 0,5W
3692	4822 116 52271	33k 5% 0,5W
3693	4822 116 52271	33k 5% 0,5W
3694	4822 116 52303	8k2 5% 0,5W

ELECTRICAL PARTS LIST - KARAOKE BOARD

3695	4822 116 52235	1M 5% 0,5W
3697	4822 116 83882	39k 5% 0,5W
3698	4822 116 52243	1k5 5% 0,5W

COILS

5651	4822 157 52983	Coil 22µH

DIODES

6601	4822 130 34173	BZX79-C5V6

TRANSISTORS & INTEGRATED CIRCUITS

7503	4822 209 33717	CXA1644P
7601	4822 209 83274	NJM4560D
7602	4822 130 41096	BC550C
7603	4822 130 41096	BC550C
7651	4822 209 83274	NJM4560D

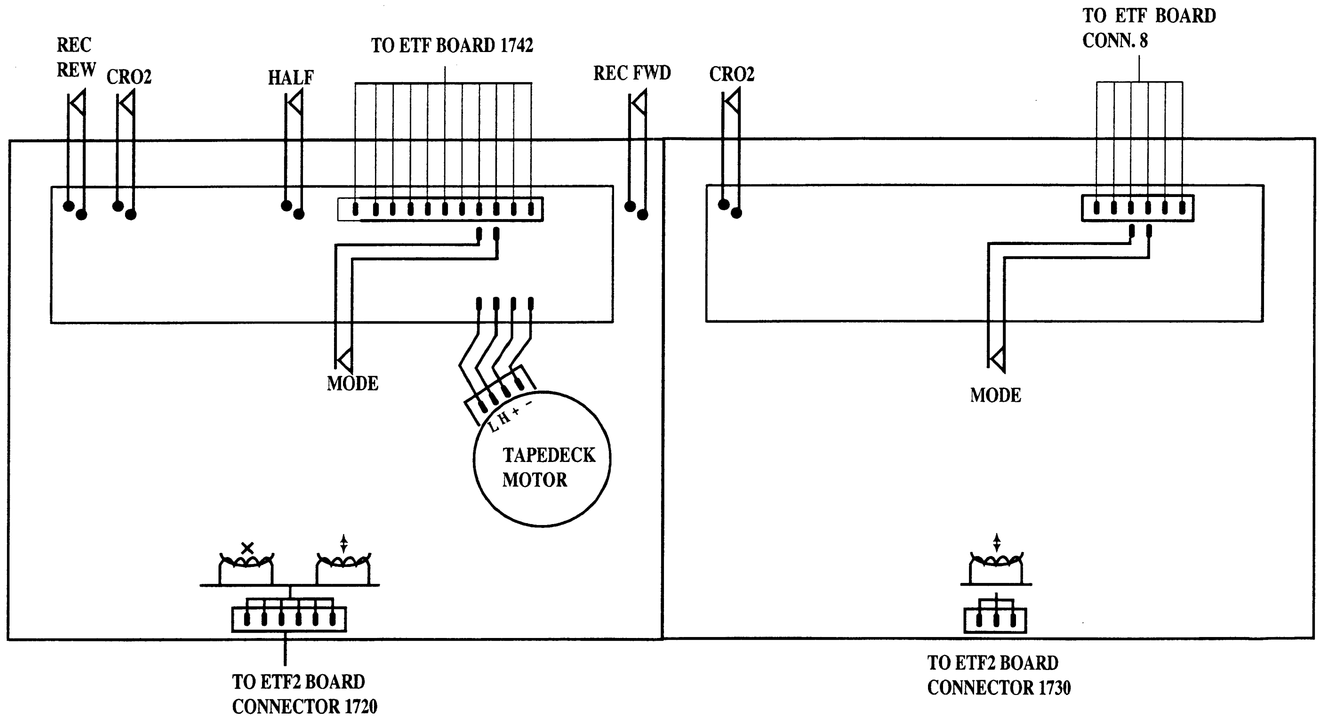
NOTE: Only the parts mentioned in this list are normal service spare parts.

ETF2 TAPE MODULE

TABLE OF CONTENTS

Tape Module Wiring 9-1
Block diagram 9-2
General description & connector assignment 9-3
Tape adjustments 9-5
ETF2 Circuits I & II 9-6
Component & Chip Layout 9-8
Tape Mechanism Electronics.................................... 9-10
Exploded views & parts list....................................... 9-10
Electrical parts list.. 9-13

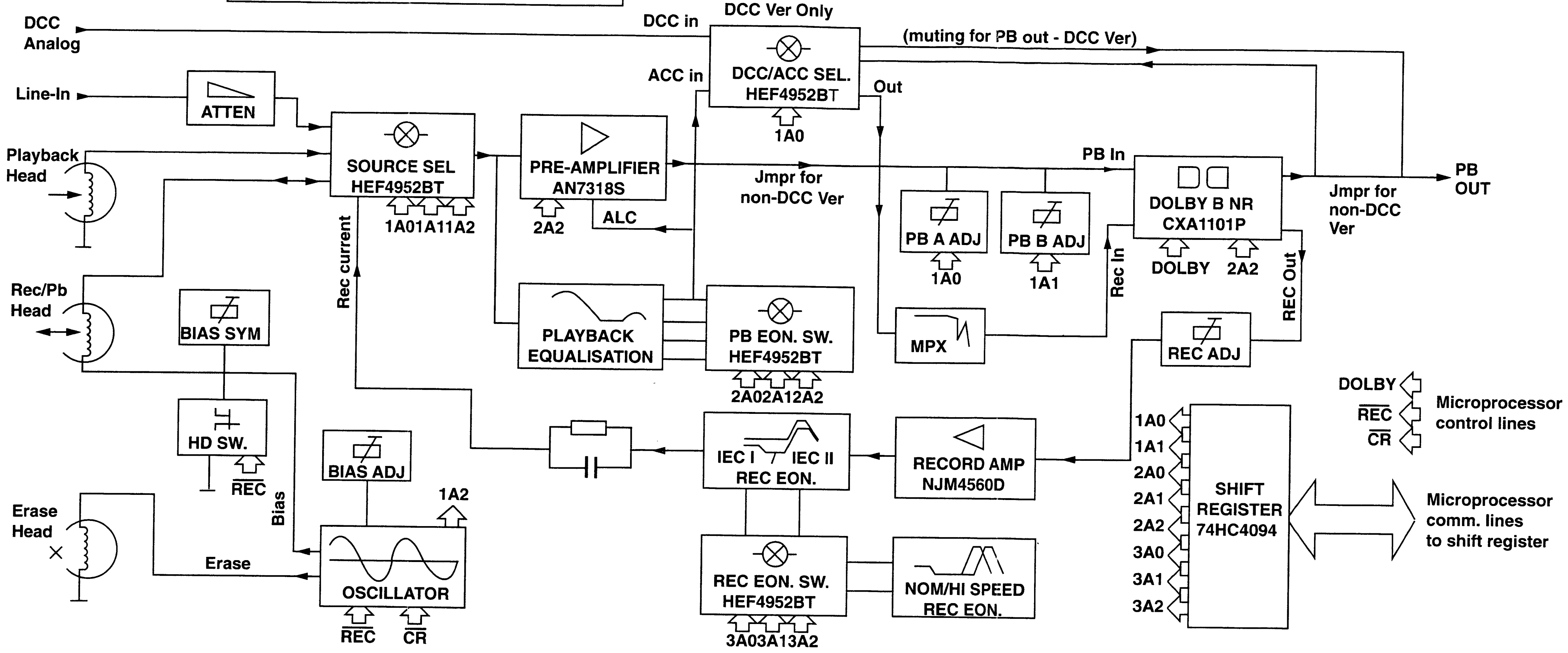
Tapedeck wiring (Double deck)



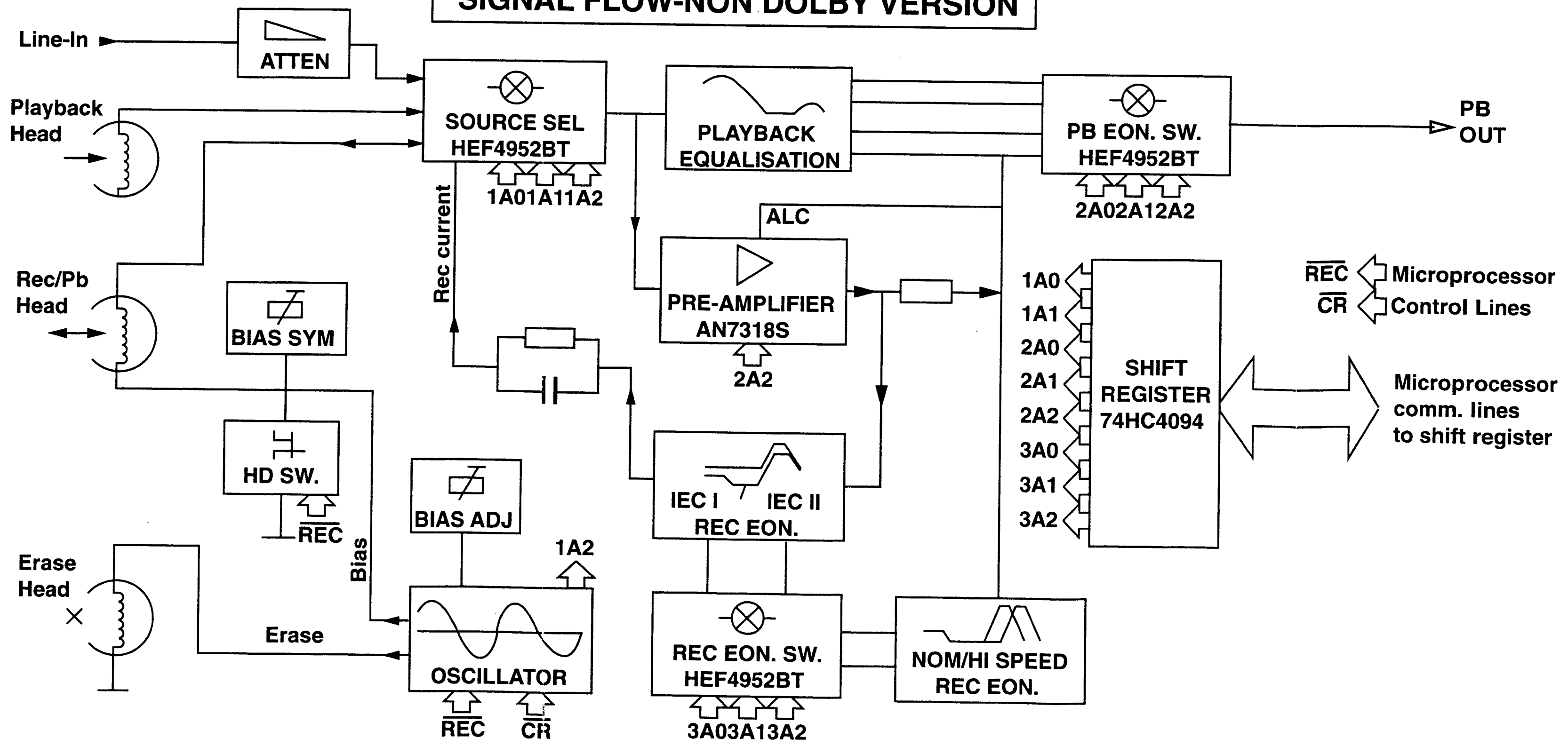
REC
REW
CRO2
HALF
TO ETF BOARD 1742
REC FWD
CRO2
TO ETF BOARD
CONN. 8
MODE
TAPEDECK
MOTOR
MODE
TO ETF2 BOARD
CONNECTOR 1720
TO ETF2 BOARD
CONNECTOR 1730

ETF 2 BLOCK DIAGRAM

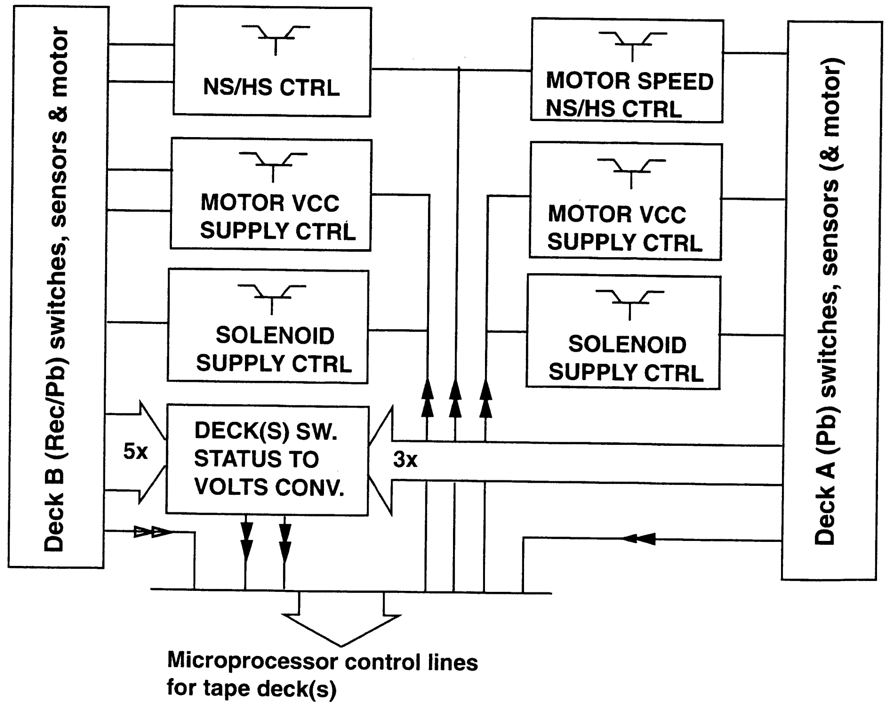
SIGNAL FLOW-DOLBY VERSION


DCC Analog
Line-In
Playback Head
Rec/Pb Head
Erase Head
ATTEN
DCC in
ACC in
DCC Ver Only
DCC/ACC SEL.
HEF4952BT
1A0
Out
(muting for PB out - DCC Ver)
SOURCE SEL
HEF4952BT
1A01A11A2
PRE-AMPLIFIER
AN7318S
2A2
ALC
Jmpr for non-DCC Ver
PB In
PB A ADJ
1A0
PB B ADJ
1A1
DOLBY B NR
CXA1101P
DOLBY
2A2
Jmpr for non-DCC Ver
PB OUT
Rec In
REC Out
Rec current
BIAS SYM
PLAYBACK EQUALISATION
PB EQN. SW.
HEF4952BT
2A02A12A2
MPX
REC ADJ
HD SW.
REC
BIAS ADJ
Bias
1A2
IEC I
IEC II
REC EQN.
RECORD AMP
NJM4560D
Erase
OSCILLATOR
REC
CR
REC EQN. SW.
HEF4952BT
3A03A13A2
NOM/HI SPEED
REC EQN.
1A0
1A1
2A0
2A1
2A2
3A0
3A1
3A2
SHIFT REGISTER
74HC4094
DOLBY
REC
CR
Microprocessor control lines
Microprocessor comm. lines to shift register

SIGNAL FLOW-NON DOLBY VERSION


Line-In
Playback Head
Rec/Pb Head
Erase Head
ATTEN
SOURCE SEL
HEF4952BT
1A01A11A2
PLAYBACK EQUALISATION
PB EQN. SW.
HEF4952BT
2A02A12A2
PB OUT
Rec current
ALC
PRE-AMPLIFIER
AN7318S
2A2
BIAS SYM
HD SW.
REC
BIAS ADJ
Bias
1A2
IEC I
IEC II
REC EQN.
Erase
OSCILLATOR
REC
CR
REC EQN. SW.
HEF4952BT
3A03A13A2
NOM/HI SPEED
REC EQN.
1A0
1A1
2A0
2A1
2A2
3A0
3A1
3A2
SHIFT REGISTER
74HC4094
REC
CR
Microprocessor Control Lines
Microprocessor comm. lines to shift register

TAPE DECK(S) INTERFACE PART


Deck B (Rec/Pb) switches, sensors & motor
NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
5x
DECK(S) SW. STATUS TO VOLTS CONV.
3x
MOTOR SPEED NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
Deck A (Pb) switches, sensors (& motor)
Microprocessor control lines for tape deck(s)

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 AF SIGNAL & SUPPLY CONNECTIONS

O	1	-CMOS	Negative d.c. supply (-9V) for CMOS ICs
O	2	TAPE-L	Playback output left
O	3	TAPE-R	Playback output right
O	4	+12V	D.C. supply (+12V) for AF electronics
O	5	GND A	AF Ground
O	6	REC-L	Record input left
O	7	REC-R	Record input right

CONNECTOR 1702 CONTROL LINES FOR AF ELECTRON ***(For NON-Dolby versions only)***

O	1	STROBE	HEF4094BT shift register Strobe line	
O	2	DATA	HEF4094BT shift register Data line	
O	3	CLK	HEF4094BT shift register Clock line	
O	4	GND P	Control & Oscillator Ground	
O	5	REC'	Record on/off control	(+5V=Pb; 0V=Rec)
O	6	CRO2'	CrO2 tape recording control	(+5V=Fe; 0V=Cr)

CONNECTOR 1705 DCC DECK CONNECTORS ***(For versions with inputs for DCC Analog Playback)***

O	1	ACC L	DCC Deck analog playback left
O	2	GND A	AF Ground
O	3	ACC R	DCC Deck analog playback right

CONNECTOR 1706 CONTROL LINES FOR AS ELECTRON ***(For versions with Dolby only)***

O	1	STROBE	HEF4094BT shift register Strobe line	
O	2	DATA	HEF4094BT shift register Data line	
O	3	CLK	HEF4094BT shift register Clock line	
O	4	GND P	Control & Oscillator Ground	
O	5	REC'	Record on/off control	(+5V=Pb; 0V=Rec)
O	6	CRO2'	CrO2 tape recording control	(+5V=Fe; 0V=Cr)
O	7	DOLBY'	Dolby NR on/off control (option)	(+5V=off; 0V=On)

CONNECTOR 1711 BIAS CURRENT SENSO ***(For Testing purpose only)***

O	1	BIAS L+	Bias current test connector - left channel
O	2	BIAS L-	Bias current test connector - left channel
O	3	BIAS R+	Bias current test connector - right channel
O	4	BIAS R-	Bias current test connector - right channel

CONNECTOR 1720 DECK B HEADS CONNECTON ***(JQ top-type)***

O	1	B R/P HD L+	R/P Head left channel positive
O	2	B R/P HD L-	R/P Head left channel negative
O	3	B R/P HD R+	R/P Head right channel positive
O	4	B R/P HD R-	R/P Head right channel negative
O	5	ERASE HEAD	Erase Head
O	6	GND P	Erase Head ground

GENERAL DESCRIPTION

FEATURES

The ETF-2 is a family of logic controlled, electronically switched tape function modules. Each module comprises a logic controlled tape deck with attached pcb housing the tape pre-amplifier, recording and switching circuitry, and tape deck interface circuitry.

The following features are available as options:
single / double tape-deck applications
auto-reverse / single way deck options
single / double motor options for double deck
IEC I & IEC II tape types auto selection for playback & recording
Dolby B type Noise Reduction
line-in recording with pilot suppression
tape dubbing at normal & high speed (for double deck applications)
automatic recording level control
software controlled full auto reverse permutations
opto-reflector disc for counter pulses & end-of-tape (EOT) auto-stop
input for DCC deck analog playpack output

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

Gnd x	Ground x
S/A	Sub-assy
FE	Ferro (IEC type I)
CR	Chrome (IEC type II)
NR	Noise Reduction
PB	Playback
REC	Record
NSD	Normal speed dubbing
HSD	High speed dubbing
DD	Double Deck
SD	Single Deck
SM	Single Motor
DM	Double Motor
ND	Non Dolby
DB	Dolby B

PC board variations 12NCs (3139 118 ...)	**ND/SD** ... 85990	**ND/DD/FF** ... 88910	**DB/DD/FR** ... 88750	**DB/DD/FF** ... 89960
Deck configuration	Single	Double	Double	Double
Motor configuration	Single	Single	Single	Single
Auto Fe/Cr02 selection	Yes	Yes	Yes	Yes
Dolby B	No	No	Yes	Yes
19kHz suppression	No	No	Yes	Yes
High speed dubbing	No	Yes	Yes	Yes
Audio I/P for DCC sets	No	No	No	No

Note: ND - Non Dolby, DB - Dolby B
SD - Single Deck, DD - Double Deck
FF - Playback + Rec/Playback
FR - Playback + Auto-reverse Rec/Playback

CONNECTOR 1742 — DECK B CONTROL INTERFACE

(For Double Deck versions only)

○	1	H	H pin for motor
○	2	L	L pin for motor
○	3	GND	Deck/Motor ground
○	4	MODE	Mode switch (head engagement)
○	5	Vcc	Deck/Motor supply
○	6	SOL B	Solenoid supply
○	7	PHOTO B	Photo sensor output (tape movement indication)
○	8	CrO2	Chrome tape detection switch
○	9	HALF	Half switch (cassette present detection, provision only)
○	10	REC FWD	Record tab protection status switch (forward)
○	11	REC RVS	Record tab protection status switch (reverse)

CONNECTOR 1743 — DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8)***

(For Double Deck/Single Motor versions only)

○	1	HALF	Half switch (cassette present detection, provision only)
○	2	CrO2	Chrome tape detection switch
○	3	PHOTO A	Photo sensor output (tape movement indication)
○	4	SOL A	Solenoid supply
○	5	Vcc	Deck/Motor supply
○	6	MODE	Mode switch (head engagement)
○	7	GND	Deck/Motor ground

CONNECTOR 1744 — DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8 & 9)***

(For Double Deck/Double Motor versions only)

○	1	HALF	Half switch (cassette present detection, provisiion only)
○	2	CrO2	Chrome tape detection switch
○	3	PHOTO A	Photo sensor output (tape movement indication)
○	4	SOL A	Solenoid supply
○	5	Vcc	Deck/Motor supply
○	6	MODE	Mode switch (head engagement)
○	7	GND	Deck/Motor ground

○	1	L	L pin for motor
○	2	H	H pin for motor

SUPPLY	**DESCRIPTION**	**VOLTAGE**
+12V	d.c. supply for AF electronics	+12V
+CMOS	d.c. supply for CMOS ICs	-9V
+MOTOR	d.c. supply for tape deck motor and solenoid	+12V
+5V	d.c. supply for deck status ADC network	+5V

CONNECTOR 1730 DECK A HEAD CONNECTIONS ***(For Double Deck versions only)***

○	1	A PB HD R+	Pb Head right channel positive
○	2	GND A	Pb Head return ground shield
○	3	A PB HD L+	Pb Head left channel positive

5.2 TAPE DECK INTERFACES

CONNECTOR 1703 MOTOR SUPPLY LINES ***(PH side-type)***

○	1	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid
○	2	GND P	Motor Ground

CONNECTOR 1704 CONTROL LINES FOR TAPE DECK OPERATE ***(PH side-type)***
(For single Deck versions only)

○	1	GND	Ground for deck sensing switches network (provision)
○	2	+5V	D.C. supply (+5V) for deck status ADC network (referenced to micro-p)
○	3	AD1	Deck B sensing switches output voltage
○	4	EOT B	Deck B EOT/counter pulse
○	5	SOLB/MOTB*	Deck B motor/solenoid control (tri-state; see table below)
○	6	AD2	Deck A sensing switches output voltage

CONNECTOR 1707 CONTROL LINES FOR TAPE DECK OPERATE ***(PH side-type)***
(For Double Deck versions only)

○	1	GND	Ground for deck sensing switches network (provision)
○	2	+5V	D.C. supply (+5V) for deck status ADC network (referenced to micro-p)
○	3	AD1	Deck B sensing switches output voltage
○	4	EOT B	Deck B EOT/counter pulse
○	5	SOLB/MOTB*	Deck B motor/solenoid control (tri-state; see table below)
○	6	AD2	Deck A sensing switches output voltage
○	7	EOT A	Deck A EOT/counter pulse
○	8	SOLA/MOTA*	Deck A motor/solenoid control (tri-state; see table)
○	9	AD3	Deck A sensing switches output voltage
○	10	NS/HS	Normal/high speed toggle (+5V=HS; 0V=NS)

* motor/solenoid tristate ctrl lines

	mot	sol
0V	on	on
Hi-Z	on	off
5V	off	off

CONNECTOR 1741 DECK B CONTROL INTERFACE
(For Single Deck versions only)

○	1	GND	Deck/Motor ground
○	2	MODE	Mode switch (head engagement)
○	3	Vcc	Deck/Motor supply
○	4	SOL B	Solenoid supply
○	5	PHOTO B	Photo sensor output (tape movement indication)
○	6	CrO2	Chrome tape detection switch
○	7	HALF	Half switch (cassette present detection, provision only)
○	8	REC FWD	Record tab protection status switch (forward)
○	9	REC RVS	Record tab protection status switch (reverse)

General

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
HIGH SPEED	SBC420 (4822 397 30071) 3150Hz	DUBBING	10 or 11 LEFT RIGHT	frequency counter	3682	5040Hz±0.5%
NORMAL		PLAY			3684	3150Hz±0.5%
CHECK WOW & FLUTTER (DECK1 AND DECK2)						
WOW FLUTTER	SBC420 (4822 397 30071) 3150Hz	PLAY	10 or 11 LEFT RIGHT	W&F-meter	check only	≤0.6 % unwtd.
ADJUST AZIMUTH (DECK1 AND DECK2)						
NORM. DIRECTION	SBC420 (4822 397 30071) 10kHz	PLAY FWD	10 or 11 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
REV. DIRECTION		PLAY REV			right hand screw	

Playback

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST DOLBY PLAYBACK LEVEL						
DECK1	DOLBY REF. (4822 397 30271) 200nWb/m	PLAY	10 or 11 LEFT RIGHT	mV-meter	3641(L), 3642(R)	535mV ±0.5dB
DECK2					3635(L), 3636(R)	
CHECK PLAYBACK FREQUENCY RESPONSE (DECK1 AND DECK2)						
PB FREQU. RESP.	SBC420 (4822 397 30071)	PLAY	10 or 11 LEFT RIGHT	mV-meter	mV-meter	limits see fig.1

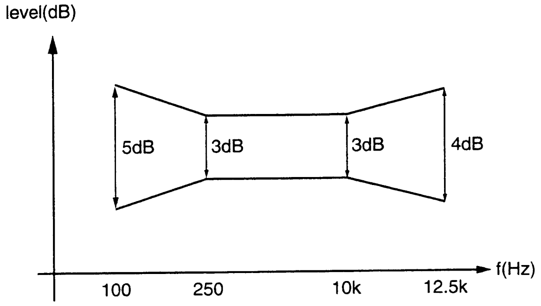


fig. 1

Recording

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
PRE-ADJUST BIAS AND BIAS-SYMMETRY						
CrO 2	CrO 2	RECORD	12 or 13 LEFT RIGHT	mV-meter	3773 & 3785	110mV & left=right
FERRO	FERRO	RECORD			check only	71mV ±0.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
37mV at AUX-IN 100Hz,250Hz,1kHz 10kHz,12.5kHz	CrO 2	RECORD				
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	mV-meter	check only	limits see fig.2
100mV at AUX-IN, 1kHz	CrO 2	RECORD				
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	THD-meter	check only	≤3%
Remark: If high frequencies are not within limits, decrease bias and remeasure. If distortion is too high increase bias and remeasure.						
ADJUST DOLBY RECORD LEVEL						
AUX-IN	CrO 2	RECORD	10 or 11 LEFT RIGHT	mV-meter	LF-generator	330Hz 170mV
	CrO 2	RECORD	12 or 13 LEFT RIGHT	mV-meter	3655 & 3556	5mV 1)
1) Remark: Use low pass filter to attenuate the bias component, or short-circuit base of 7783 to ground.						
RECORD LEVEL CHECK						
	RECORDED CASSETTE	PLAY	10 or 11 LEFT RIGHT	mV-meter	check only	330Hz 170mV ±0.5dB
Remark: If measured value is out of limit, re-adjust record level and remeasure.						

Note : The adjustment and check table are for all options/variants. For your exact application , please refer to the Options/Variants Table.

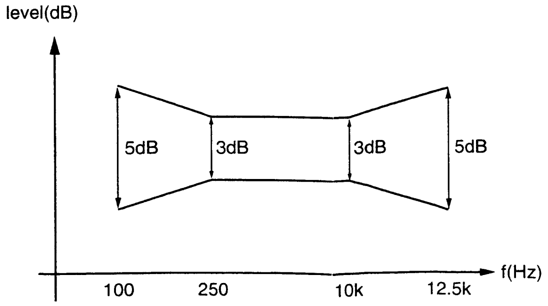
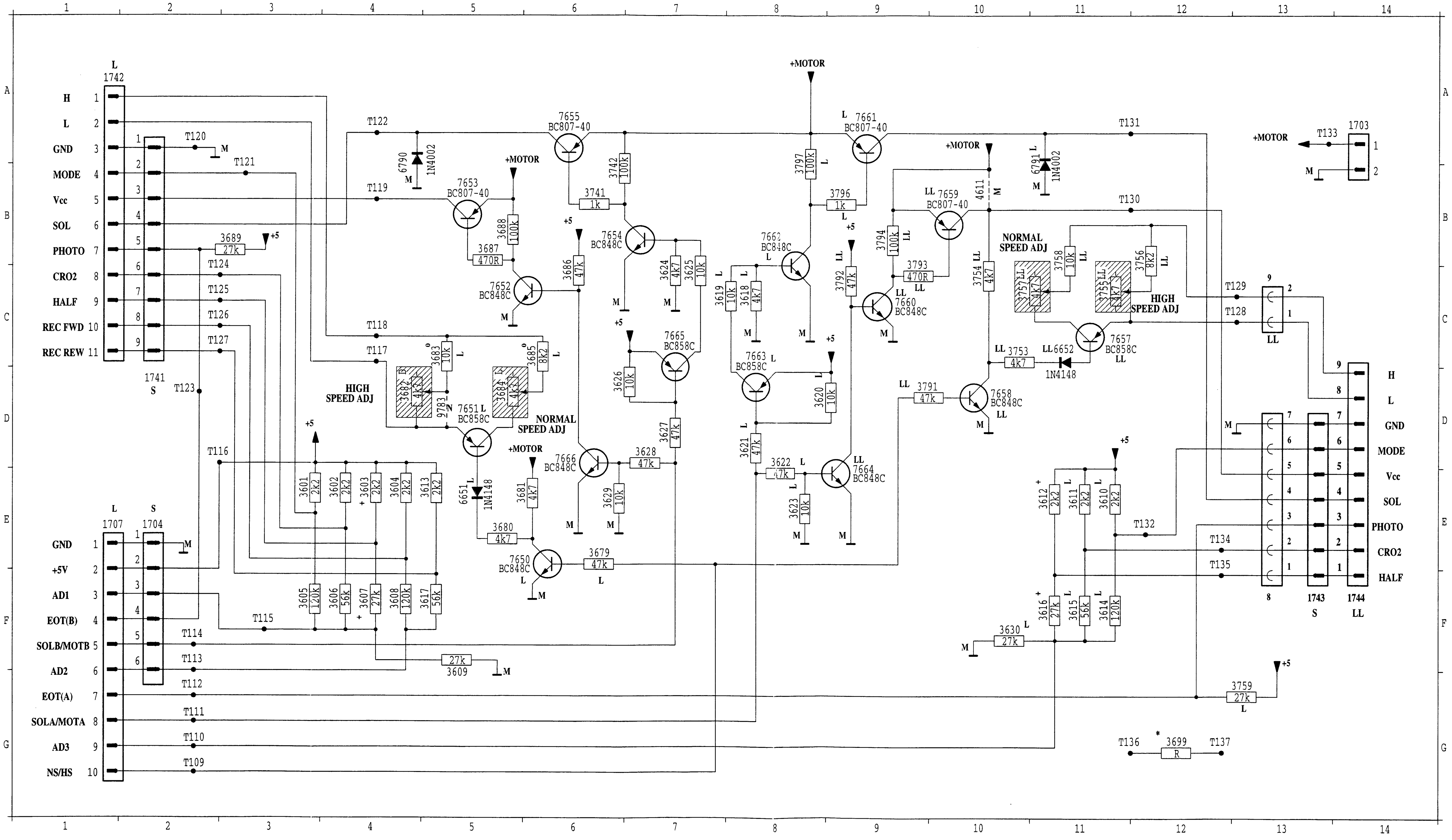


fig. 2

ETF2 CIRCUIT I


1742
H 1
L 2
GND 3
MODE 4
Vcc 5
SOL 6
PHOTO 7
CRO2 8
HALF 9
REC FWD 10
REC REW 11
1741 S
1707
1704
GND 1
+5V 2
AD1 3
EOT(B) 4
SOLB/MOTB 5
AD2 6
EOT(A) 7
SOLA/MOTA 8
AD3 9
NS/HS 10
+MOTOR
HIGH SPEED ADJ
NORMAL SPEED ADJ
7655 BC807-40
7661 BC807-40
7653 BC807-40
7659 BC807-40
7654 BC848C
7652 BC848C
7662 BC848C
7660 BC848C
7665 BC858C
7663 BC858C
7651 BC858C
7657 BC858C
7658 BC848C
7666 BC848C
7664 BC848C
7650 BC848C
6790 1N4002
6791 1N4002
6651 1N4148
6652 1N4148
3699 R
1703
1743 S
1744 LL
H
L
GND
MODE
Vcc
SOL
PHOTO
CRO2
HALF

1703	A14
1704	E 2
1707	E 2
1741	D 2
1742	A 2
3601	E 3
3602	E 4
3603	E 4
3604	E 4
3605	F 3
3606	F 4
3607	F 4
3608	F 4
3610	E11
3611	E11
3612	E11
3613	E 5
3614	F11
3615	F11
3616	F11
3617	F 5
3618	C 8
3619	C 7
3620	D 8
3621	D 8
3622	D 8
3623	E 8
3624	C 7
3625	C 7
3626	D 6
3627	D 7
3628	D 7
3629	E 6
3679	E 6
3680	E 5
3681	E 6
3682	D 4
3683	C 5
3684	D 5
3685	C 6
3686	C 6
3687	B 5
3688	B 5
3689	B 3
3699	G12
3741	B 6
3742	B 6
3753	C10
3754	C10
3755	C11
3756	B12
3757	C10
3758	B11
3759	G13
3791	D 9
3792	C 9
3793	C 9
3794	B 9
3796	B 9
3797	A 8
4611	B10
6651	E 5
6652	C11
6790	A 4
6791	A11
7650	E 6
7651	D 5
7652	C 5
7653	B 5
7654	B 6
7655	A 6
7657	C11
7658	D10
7659	B10
7660	C 9
7661	A 9
7662	B 8
7663	C 8
7664	E 9
7665	C 7
7666	D 6
8	F13
9	C13
9783	D 5
T109	G 2
T110	G 2
T111	G 2
T112	G 2
T113	F 2
T114	F 2
T115	F 3
T116	D 2
T117	C 4
T118	C 4
T119	B 4
T120	A 2
T121	A 3
T122	A 4
T123	D 2
T124	B 2
T125	C 2
T126	C 2
T127	C 2
T128	C13
T129	C13
T130	B11
T131	A11
T132	E12
T133	A13
T134	E12
T135	E12
T136	G11
T137	G12

S Required for sets with Single-Deck only
N Required for sets with Non-Dolby/Double-Deck only
D Required for sets with Dolby/Double-Deck only
L Required for sets with Double-Deck only
M Required for sets with Double-Deck/Single-Motor only
LL Required for sets with Double-Deck/Double-Motor only
+ For provision only

* For Variants detection during PCB testing :

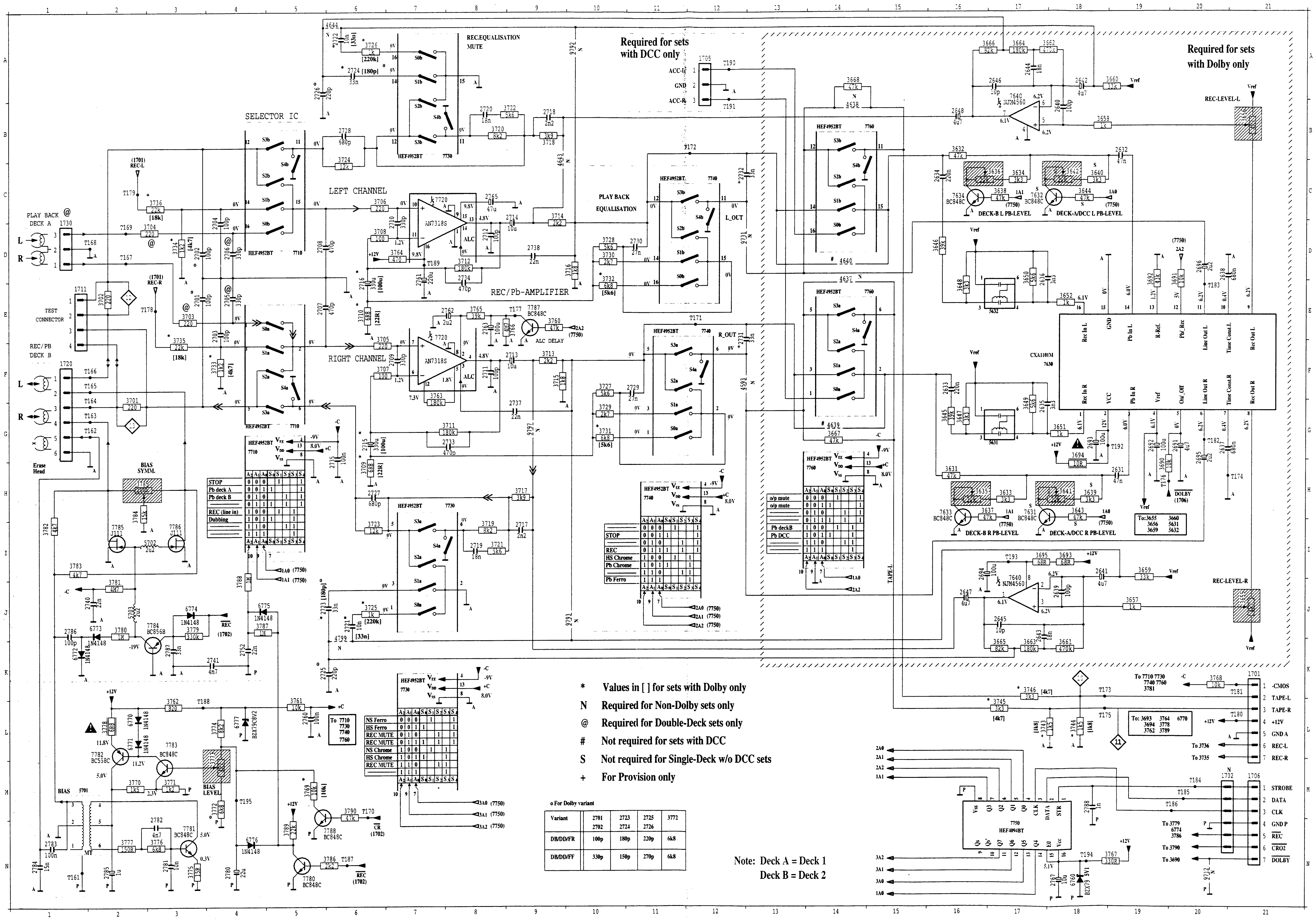
Values for Resistor 3699

1	ND/SD	1k
2	DB/SD	2k2
3	ND/DD/FR	3k3
4	DB/DD/FR	5k6
5	DB/DD/RR	5k6
6	DB/DD/DM	6k8

o For Dolby variant,

3683	DB/DD/FR	8k2
	DB/DD/FF	6k8
3685	DB/DD/FR	10k

ETF2 CIRCUIT II


SELECTOR IC
LEFT CHANNEL
RIGHT CHANNEL
REC.EQUALISATION MUTE
REC/Pb-AMPLIFIER
PLAY BACK EQUALISATION
ALC DELAY
PLAY BACK DECK A
REC/PB DECK B
TEST CONNECTOR
Erase Head
BIAS SYMM.
BIAS LEVEL
Required for sets with DCC only
Required for sets with Dolby only
REC-LEVEL-L
REC-LEVEL-R
DECK-B L PB-LEVEL
DECK-A/DCC L PB-LEVEL
DECK-B R PB-LEVEL
DECK-A/DCC R PB-LEVEL
CXA1101M 7630
HEF4952BT 7710
HEF4952BT 7720
HEF4952BT 7730
HEF4952BT 7740
HEF4952BT 7760
HEF4094BT 7750
AN7318S 7720
NJM4560 7640
L_OUT
R_OUT
ACC-L
GND
ACC-R
STOP
Pb deck A
Pb deck B
REC (line in)
Dubbing
REC
HS Chrome
Pb Chrome
Pb Ferro
o/p mute
Pb deckB
Pb DCC
NS Ferro
HS Ferro
REC MUTE
NS Chrome
-CMOS
TAPE-L
TAPE-R
+12V
GND A
REC-L
REC-R
STROBE
DATA
CLK
GND P
REC
CRO2
DOLBY
To 7710 7730 7740 7760
To: 3655 3656 3659 3660 5631 5632
To: 3693 3694 3762 3764 3778 3789 6770

- * Values in [ ] for sets with Dolby only
- N Required for Non-Dolby sets only
- @ Required for Double-Deck sets only
- # Not required for sets with DCC
- S Not required for Single-Deck w/o DCC sets
- + For Provision only

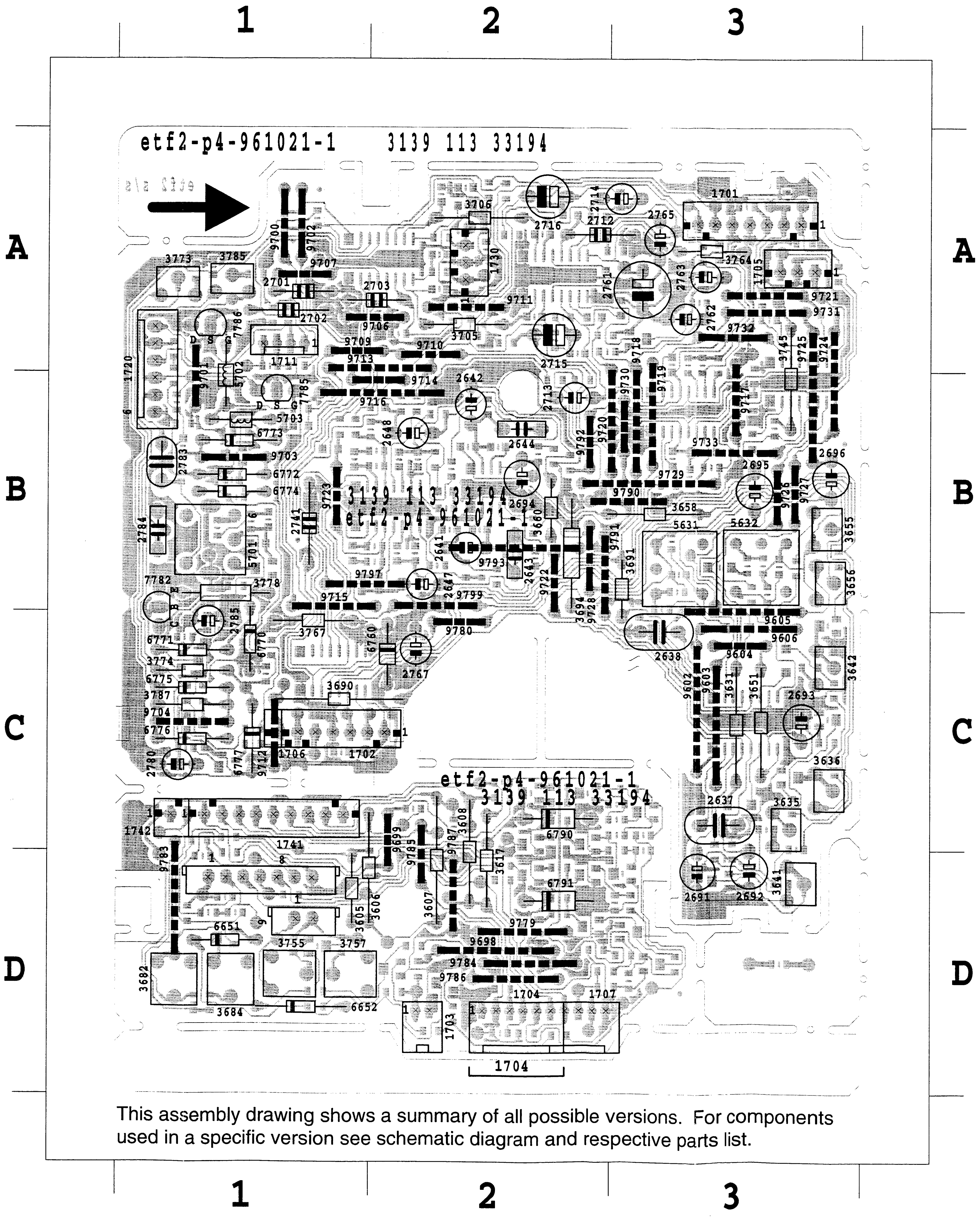
o For Dolby variant

Variant	2701 2702	2723 2724	2725 2726	3772
DB/DD/FR	100p	180p	220p	6k8
DB/DD/FF	330p	150p	270p	6k8

Note: Deck A = Deck 1
Deck B = Deck 2

1701	K21	3732	D10
1702	M20	3733	F 4
1705	A12	3734	D 3
1706	M21	3735	E 3
1711	E 1	3736	C 3
1720	F 1	3743	L17
1730	D 1	3744	L18
2631	H19	3745	L17
2632	B19	3746	K17
2633	F16	3760	E 9
2634	C16	3761	L 5
2635	G17	3762	L 3
2636	D17	3763	F 7
2637	G20	3764	D 7
2638	D20	3765	E 8
2639	J18	3766	E 9
2640	B18	3767	N19
2641	I18	3768	K20
2642	A18	3769	M 5
2643	J17	3770	M 2
2644	A17	3771	M 3
2645	J17	3772	M 4
2646	A17	3773	L 4
2647	J16	3774	L 4
2648	B16	3775	N 3
2691	G20	3776	N 3
2692	G19	3777	N 2
2693	G18	3778	L 2
2694	I16	3779	J 3
2695	G20	3780	J 2
2696	D20	3781	J 2
2701	E 3	3782	I 1
2702	D 3	3783	I 1
2703	E 4	3784	H 2
2704	D 4	3785	H 2
2705	E 4	3786	N 6
2706	D 4	3787	J 4
2707	E 5	3788	J 4
2708	D 5	3789	N 5
2709	F 7	3790	M 6
2710	D 7	4593	F12
2711	F 8	4637	E14
2712	D 8	4638	B14
2713	F 9	4639	G14
2714	C 9	4640	D14
2715	G 6	4643	B 9
2716	E 6	4644	A 6
2717	I 9	4799	K 6
2718	B 9	5631	G17
2719	I 8	5632	E17
2720	B 8	5701	M 1
2721	J 6	5702	I 3
2722	A 6	5703	J 2
2723	J 5	6760	N18
2724	A 6	6770	L 2
2725	K 5	6771	L 2
2726	A 5	6772	K 1
2727	H 6	6773	J 2
2728	B 6	6774	J 3
2729	F11	6775	J 4
2730	D11	6776	N 4
2731	E12	6777	L 4
2732	C12	7630	F18
2733	G 8	7631	H17
2734	D 8	7632	C17
2735	H 6	7633	H16
2737	G 9	7634	C16
2738	D 9	7640	J17
2740	J 2	7640	A17
2741	K 4	7710	G 5
2752	K 4	7710	D 5
2760	L 5	7710	G 4
2761	D 7	7720	E 7
2762	E 8	7720	C 7
2763	E 8	7730	H 7
2765	C 8	7730	B 7
2767	N18	7730	K 7
2780	N 4	7740	C12
2781	N 3	7740	H11
2782	N 3	7740	E12
2783	N 1	7750	N17
2784	N 1	7760	E14
2785	N 2	7760	H13
2786	J 1	7760	B14
2787	K 3	7780	N 5
2788	M18	7781	N 3
3631	H16	7782	L 2
3632	B16	7783	L 3
3633	H17	7784	J 2
3634	C17	7785	I 2
3635	H16	7786	I 3
3636	C17	7787	E 9
3637	H17	7788	N 6
3638	C17	9712	N20
3639	H18	9731	D12
3640	C18	9792	A10
3641	H18	9793	J10
3642	C18	9797	G 9
3643	H18	T161	N 1
3644	C18	T162	G 2
3645	G16	T163	G 2
3646	D16	T164	F 2
3647	G16	T165	F 2
3648	E16	T166	F 2
3649	G17	T167	D 2
3650	D17	T168	D 2
3651	G18	T169	D 2
3652	E18	T170	M 6
3655	J21	T171	E12
3656	B21	T172	B12
3657	J19	T173	K18
3658	B18	T174	H21
3659	I19	T175	L18
3660	A19	T176	H19
3661	K18	T177	E 9
3662	A18	T178	E 3
3663	K17	T179	C 2
3664	A17	T180	L21
3665	K17	T181	K21
3666	A17	T182	G20
3667	G14	T183	E20
3668	A14	T184	M20
3690	H19	T185	M20
3691	D20	T186	M20
3692	D19	T187	N 6
3693	I18	T188	L 3
3694	G18	T189	D 7
3695	I17	T190	A12
3701	F 2	T191	B12
3702	E 2	T192	G19
3703	E 3	T193	I17
3704	D 3	T194	N18
3705	E 6	T195	M 4
3706	C 6		
3707	F 6		
3708	D 6		
3709	H 6		
3710	E 6		
3711	G 8		
3712	D 8		
3713	F 9		
3714	C 9		
3715	F 9		
3716	D10		
3717	H 9		
3718	B 9		
3719	I 8		
3720	B 8		
3721	I 8		
3722	B 9		
3723	I 6		
3724	B 6		
3725	J 6		
3726	A 6		
3727	F10		
3728	D10		
3729	G10		
3730	D10		
3731	G10		

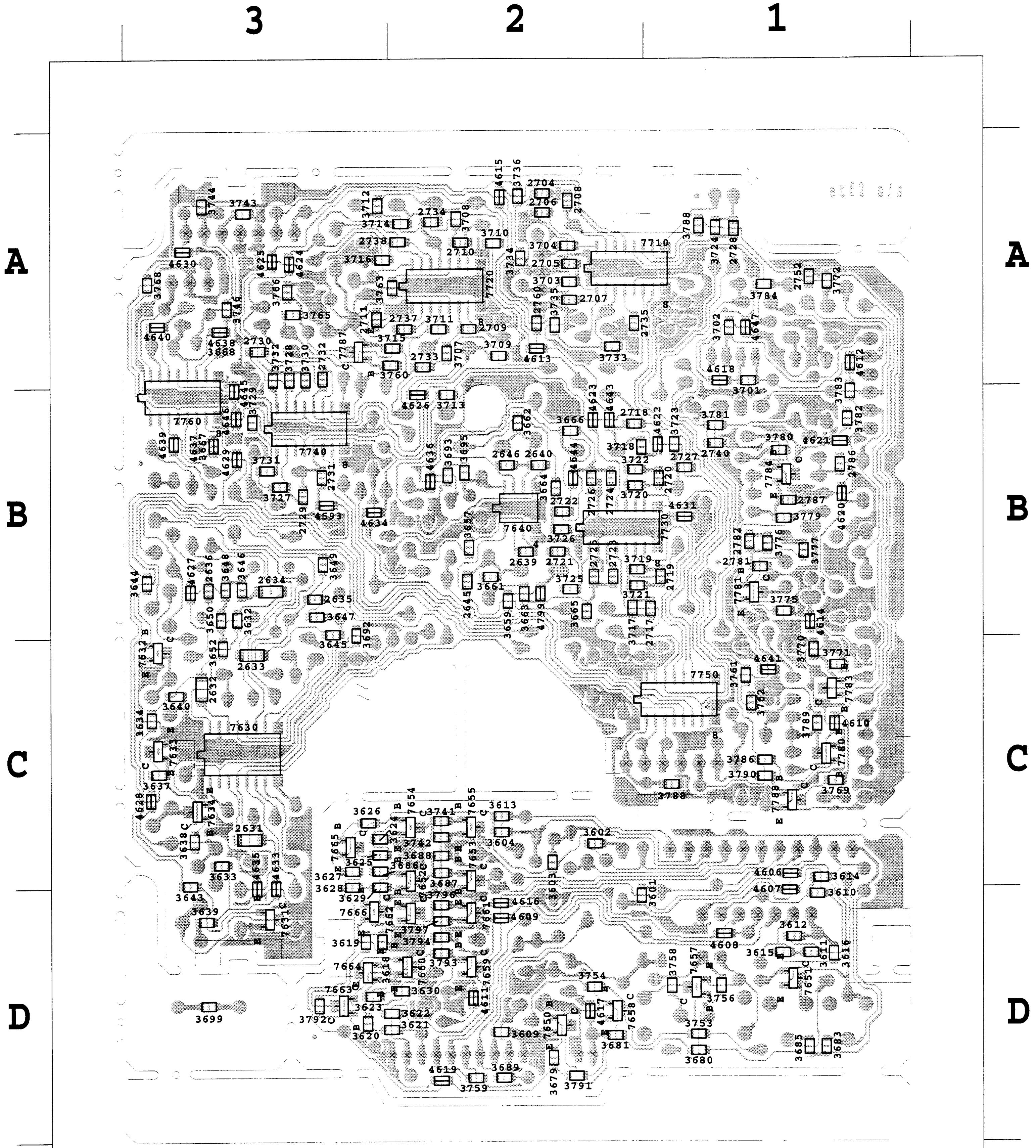
COMPONENT LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

8	D	1
9	D	1
1701	A	3
1702	C	1
1703	D	2
1704	D	2
1705	A	3
1706	C	1
1707	D	2
1711	A	1
1720	A	1
1730	A	2
1741	C	1
1742	C	1
2637	C	3
2638	C	3
2641	B	2
2642	B	2
2643	B	2
2644	B	2
2647	B	2
2648	B	2
2691	D	3
2692	D	3
2693	C	3
2694	B	2
2695	B	3
2696	B	3
2701	A	1
2702	A	1
2703	A	2
2712	A	2
2713	B	2
2714	A	3
2715	A	2
2716	A	2
2741	B	1
2761	A	3
2762	A	3
2763	A	3
2765	A	3
2767	C	2
2780	C	1
2783	B	1
2784	B	1
2785	C	1
3605	D	1
3606	D	2
3607	D	2
3608	D	2
3617	D	2
3631	C	3
3635	C	3
3636	C	3
3641	D	3
3642	C	3
3651	C	3
3655	B	3
3656	B	3
3658	B	3
3660	B	2
3682	D	1
3684	D	1
3690	C	1
3691	B	3
3694	B	2
3705	A	2
3706	A	2
3745	B	3
3755	D	1
3757	D	1
3764	A	3
3767	C	1
3773	A	1
3774	C	1
3778	B	1
3785	A	1
3787	C	1
5631	B	3
5632	B	3
5701	B	1
5702	B	1
5703	B	1
6651	D	1
6652	D	1
6760	C	2
6770	C	1
6771	C	1
6772	B	1
6773	B	1
6774	B	1
6775	C	1
6776	C	1
6777	C	1
6790	C	2
6791	D	2
7782	B	1
7785	B	1
7786	A	1
9602	C	3
9603	C	3
9604	C	3
9605	C	3
9606	C	3
9698	D	2
9699	C	2
9700	A	1
9701	B	1
9702	A	1
9703	B	1
9704	C	1
9706	A	2
9707	A	1
9709	A	1
9710	A	2
9711	A	2
9712	C	1
9713	A	2
9714	B	2
9715	B	1
9716	B	2
9717	B	3
9718	B	3
9719	B	3
9720	B	3
9721	A	3
9722	B	2
9723	B	1
9724	B	3
9725	B	3
9726	B	3
9727	B	3
9728	B	2
9729	B	3
9730	B	3
9731	A	3
9732	A	3
9733	B	3
9779	D	2
9780	C	2
9783	D	1
9784	D	2
9785	D	2
9786	D	2
9787	D	2
9790	B	3
9791	B	2
9792	B	2
9793	B	2
9797	B	1
9799	B	2

CHIP LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2631	C	3
2632	C	3
2633	C	3
2634	B	3
2635	B	3
2636	B	3
2639	B	2
2640	B	2
2645	B	2
2646	B	2
2704	A	2
2705	A	2
2706	A	2
2707	A	2
2708	A	2
2709	A	2
2710	A	2
2711	A	3
2717	B	1
2718	B	2
2719	B	1
2720	B	1
2721	B	2
2722	B	2
2723	B	2
2724	B	2
2725	B	2
2726	B	2
2727	B	1
2728	A	1
2729	B	3
2730	A	3
2731	B	3
2732	A	3
2733	A	2
2734	A	2
2735	A	2
2737	A	2
2738	A	2
2740	B	1
2752	A	1
2760	A	2
2781	B	1
2782	B	1
2786	B	1
2787	B	1
2788	C	1
3601	D	2
3602	C	2
3603	C	2
3604	C	2
3609	D	2
3610	D	1
3611	D	1
3612	D	1
3613	C	2
3614	C	1
3615	D	1
3616	D	1
3618	D	3
3619	D	3
3620	D	3
3621	D	2
3622	D	2
3623	D	3
3624	C	3
3625	C	3
3626	C	3
3627	C	3
3628	D	3
3629	D	3
3630	D	2
3632	B	3
3633	C	3
3634	C	3
3637	C	3
3638	C	3
3639	D	3
3640	C	3
3643	C	3
3644	B	3
3645	B	3
3646	B	3
3647	B	3
3648	B	3
3649	B	3
3650	B	3
3652	C	3
3657	B	2
3659	B	2
3661	B	2
3662	B	2
3663	B	2
3664	B	2
3665	B	2
3666	B	2
3667	B	3
3668	A	3
3679	D	2
3680	D	1
3681	D	2
3683	D	1
3685	D	1
3686	C	3
3687	C	2
3688	C	2
3689	D	2
3692	B	3
3693	B	2
3695	B	2
3699	D	3
3701	A	1
3702	A	1
3703	A	2
3704	A	2
3707	A	2
3708	A	2
3709	A	2
3710	A	2
3711	A	2
3712	A	3
3713	B	2
3714	A	2
3715	A	2
3716	A	3
3717	B	2
3718	B	2
3719	B	2
3720	B	2
3721	B	2
3722	B	2
3723	B	1
3724	A	1
3725	B	2
3726	B	2
3727	B	3
3728	A	3
3729	B	3
3730	A	3
3731	B	3
3732	A	3
3733	A	2
3734	A	2
3735	A	2
3736	A	2
3741	C	2
3742	C	2
3743	A	3
3744	A	3
3746	A	3
3753	D	1
3754	D	2
3756	D	1
3758	D	1
3759	D	2
3760	A	2
3761	C	1
3762	C	1
3763	A	2
3765	A	3
3766	A	3
3768	A	3
3769	C	1
3770	C	1
3771	C	1
3772	A	1
3775	B	1
3776	B	1
3777	B	1
3779	B	1
3780	B	1
3781	B	1
3782	B	1
3783	B	1
3784	A	1
3786	C	1
3788	A	1
3789	C	1
3790	C	1
3791	D	2
3792	D	3
3793	D	2
3794	D	2
3796	D	2
3797	D	2
4593	B	3
4606	C	1
4607	D	1
4608	D	1
4609	D	2
4610	C	1
4611	D	2
4612	A	1
4613	A	2
4614	B	1
4615	A	2
4616	D	2
4617	D	2
4618	A	1
4619	D	2
4620	B	1
4621	B	1
4622	B	1
4623	B	2
4624	A	3
4625	A	3
4626	B	2
4627	B	3
4628	C	3
4629	B	3
4630	A	3
4631	B	1
4633	D	3
4634	B	3
4635	D	3
4636	B	2
4637	B	3
4638	A	3
4639	B	3
4640	A	3
4641	C	1
4643	B	2
4644	B	2
4645	B	3
4646	B	3
4647	A	1
4799	B	2
7630	C	3
7631	D	3
7632	C	3
7633	C	3
7634	C	3
7640	B	2
7650	D	2
7651	D	1
7652	C	2
7653	C	2
7654	C	2
7655	C	2
7657	D	1
7658	D	2
7659	D	2
7660	D	2
7661	D	2
7662	D	2
7663	D	3
7664	D	3
7665	C	3
7666	D	3
7710	A	2
7720	A	2
7730	B	2
7740	B	3
7750	C	1
7760	B	3
7780	C	1
7781	B	1
7783	C	1
7784	B	1
7787	A	3
7788	C	1

TAPE MECHANISM A ELECTRONICS

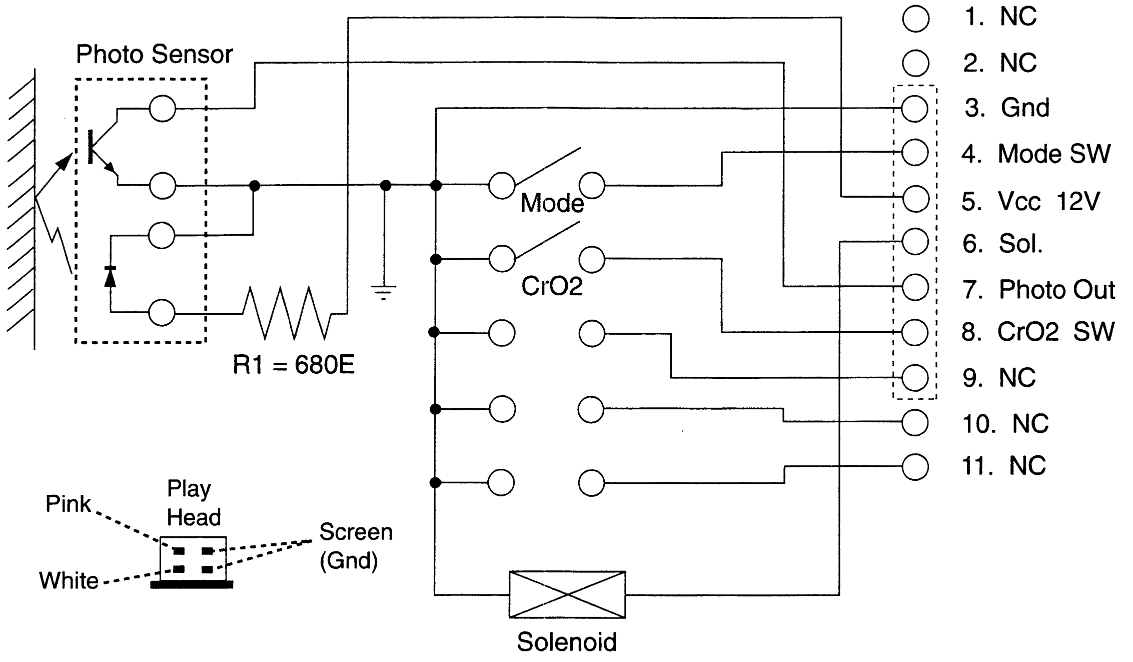
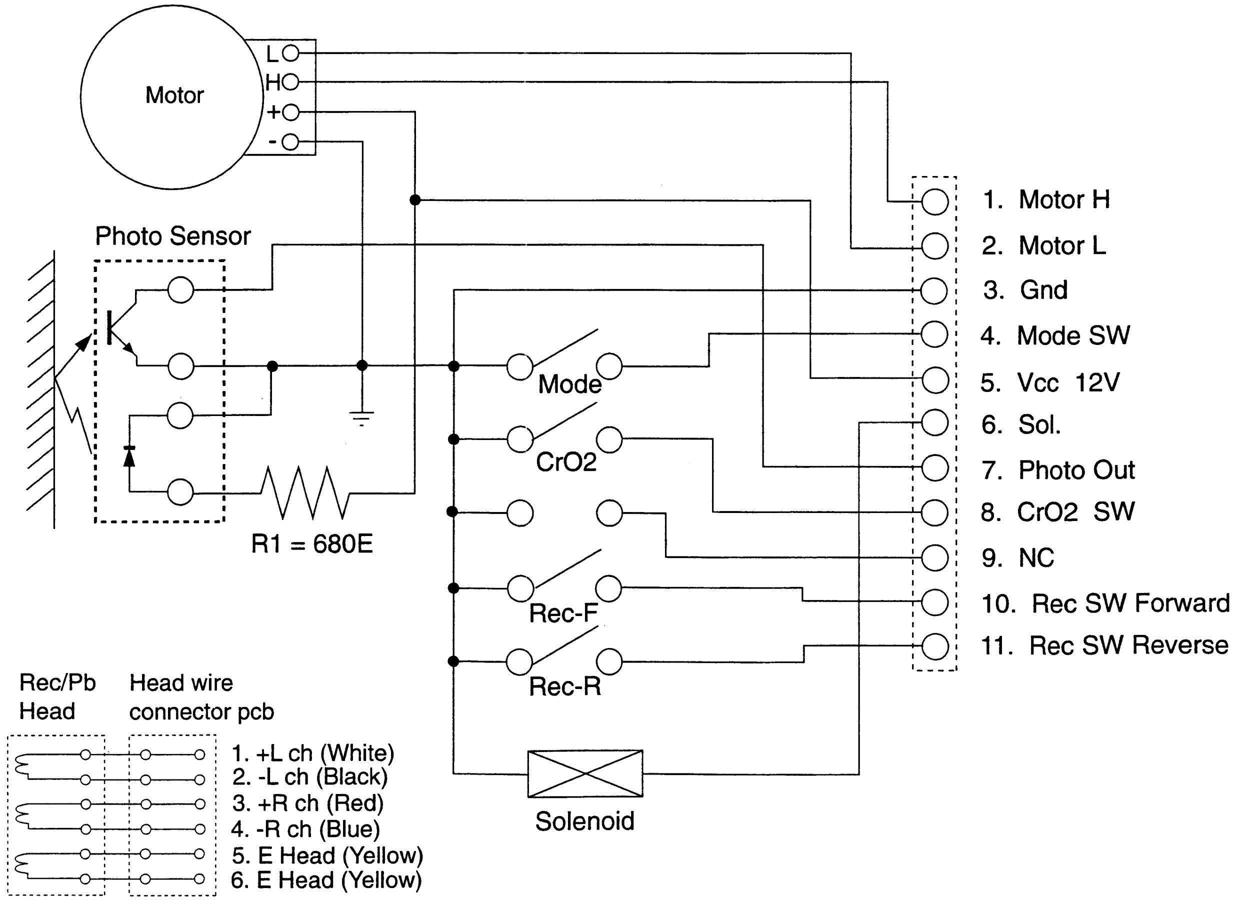
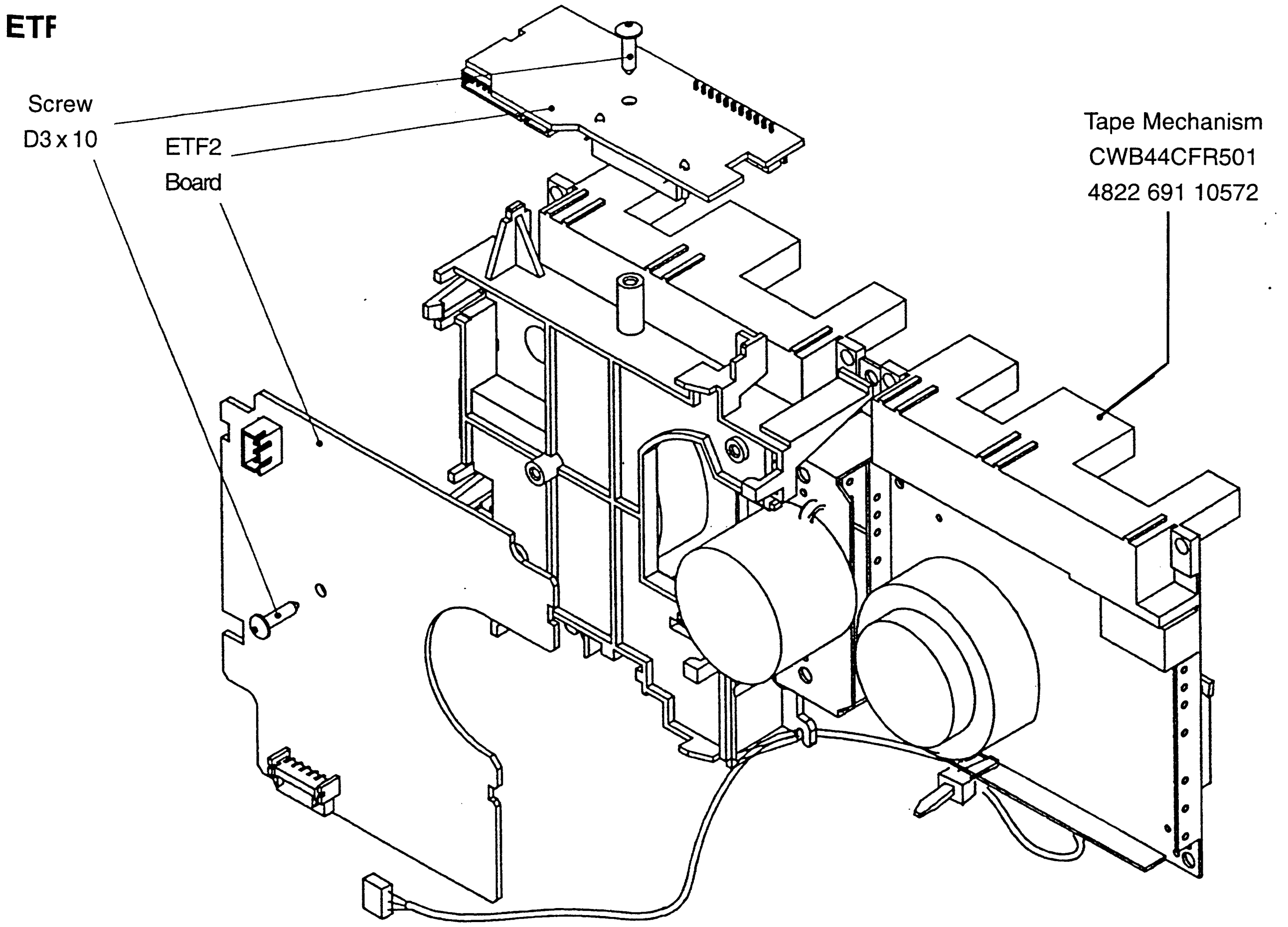


Photo Sensor
R1 = 680E
Mode
CrO2
Pink
White
Play Head
Screen (Gnd)
Solenoid
1. NC
2. NC
3. Gnd
4. Mode SW
5. Vcc 12V
6. Sol.
7. Photo Out
8. CrO2 SW
9. NC
10. NC
11. NC

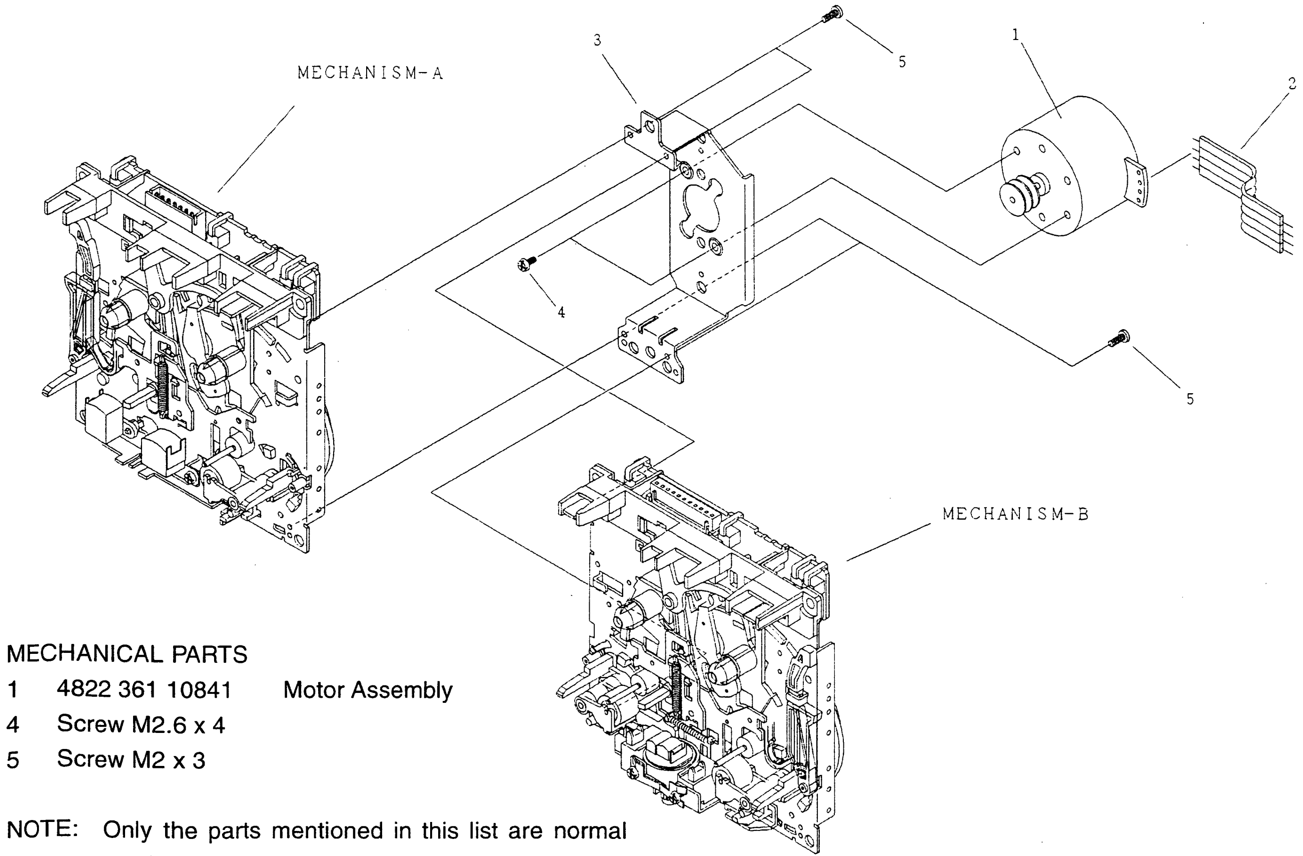
TAPE MECHANISM B ELECTRONICS


Motor
L
H
+
-
Photo Sensor
R1 = 680E
Mode
CrO2
Rec-F
Rec-R
Solenoid
1. Motor H
2. Motor L
3. Gnd
4. Mode SW
5. Vcc 12V
6. Sol.
7. Photo Out
8. CrO2 SW
9. NC
10. Rec SW Forward
11. Rec SW Reverse
Rec/Pb Head
Head wire connector pcb
1. +L ch (White)
2. -L ch (Black)
3. +R ch (Red)
4. -R ch (Blue)
5. E Head (Yellow)
6. E Head (Yellow)

ETF


Screw
D3 x 10
ETF2
Board
Tape Mechanism
CWB44CFR501
4822 691 10572

TAPE MECHANISM A & B


MECHANISM-A
MECHANISM-B
1
2
3
4
5
5

MECHANICAL PARTS

1	4822 361 10841	Motor Assembly
4	Screw M2.6 x 4	
5	Screw M2 x 3	

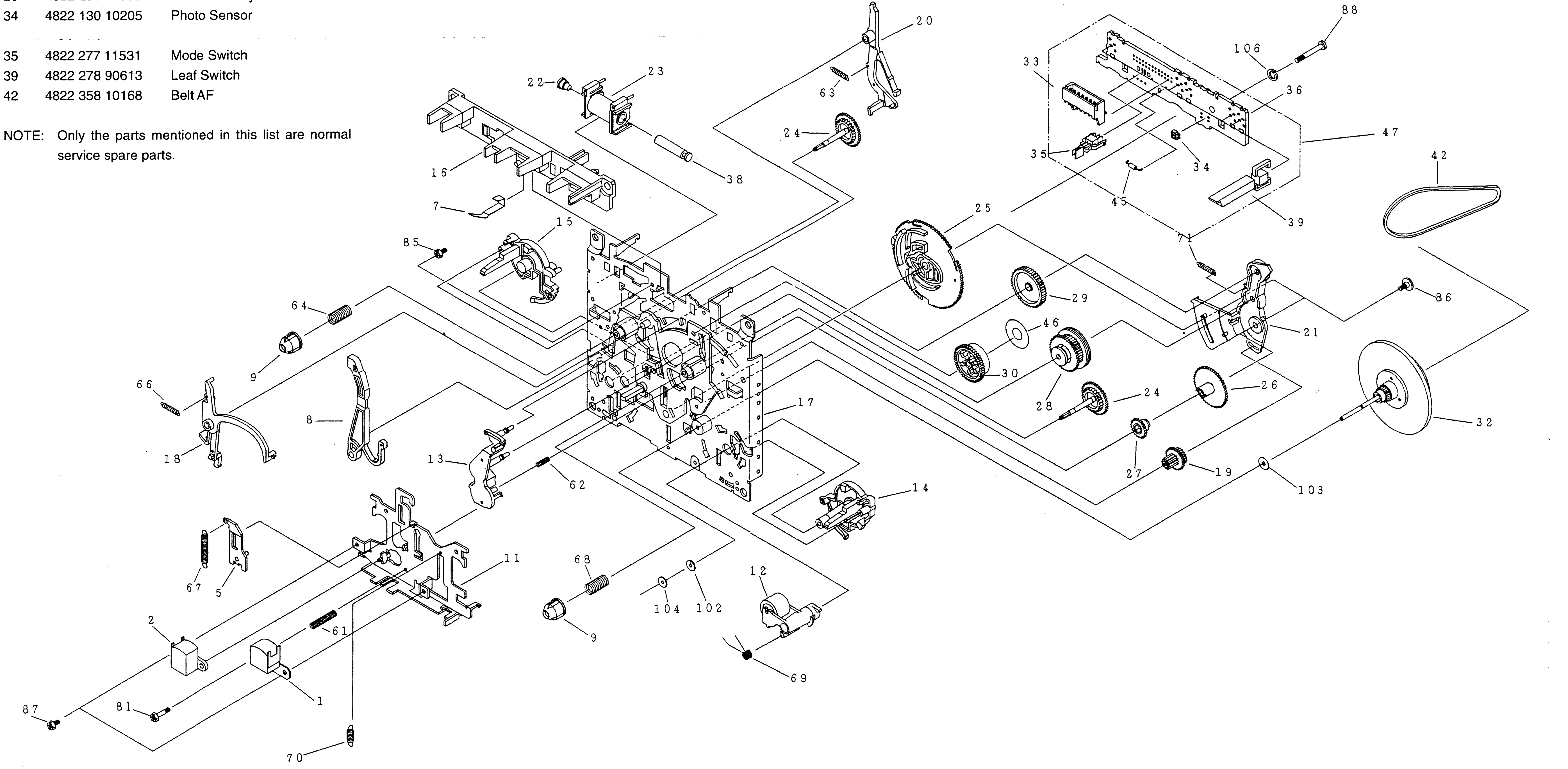
NOTE: Only the parts mentioned in this list are normal service spare parts.

TAPE MECHANISM A

MECHANICAL PARTS

1	4822 249 10397	Play Head
12	4822 528 10974	Assembly, Arm Pinch R
23	4822 281 11069	Coil Assembly
34	4822 130 10205	Photo Sensor
35	4822 277 11531	Mode Switch
39	4822 278 90613	Leaf Switch
42	4822 358 10168	Belt AF

NOTE: Only the parts mentioned in this list are normal service spare parts.

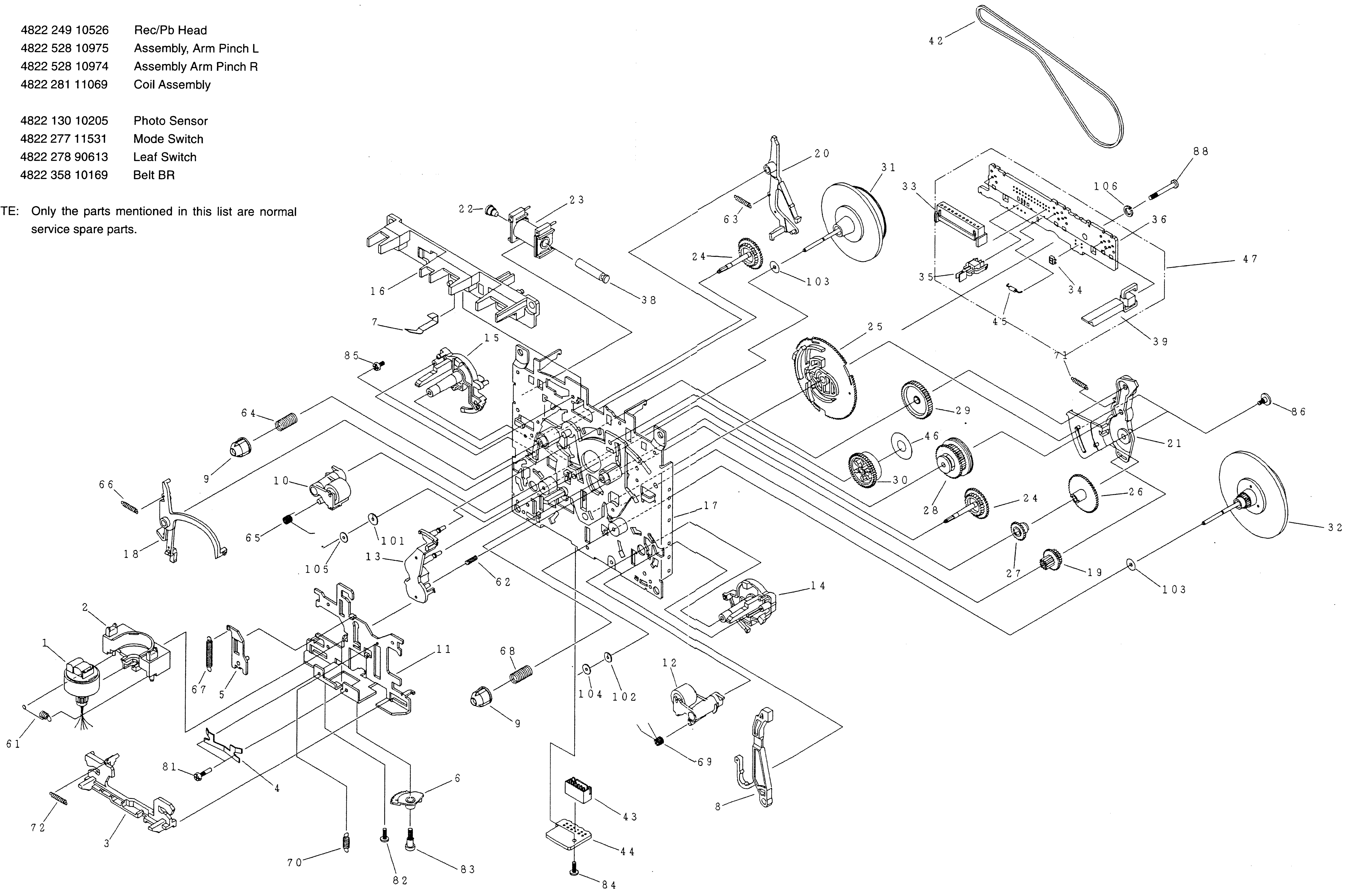

20
88
106
33
36
23
22
63
24
47
35
34
42
16
38
45
39
7
25
15
71
85
29
86
64
46
21
9
30
66
26
17
28
24
32
8
18
13
27
19
103
62
14
11
68
12
67
5
104
102
2
61
9
69
87
81
1
70

TAPE MECHANISM B

MECHANICAL PARTS

1	4822 249 10526	Rec/Pb Head
10	4822 528 10975	Assembly, Arm Pinch L
12	4822 528 10974	Assembly Arm Pinch R
23	4822 281 11069	Coil Assembly
34	4822 130 10205	Photo Sensor
35	4822 277 11531	Mode Switch
39	4822 278 90613	Leaf Switch
42	4822 358 10169	Belt BR

NOTE: Only the parts mentioned in this list are normal service spare parts.


42
20
31
33
88
106
36
47
22
23
63
24
103
35
34
16
38
45
39
7
15
25
71
85
29
86
64
46
21
30
28
24
26
9
66
10
17
32
65
101
18
13
105
62
27
19
103
14
2
11
68
1
67
5
104
102
12
9
61
81
4
69
6
8
72
43
3
70
82
83
44
84

ELECTRICAL PARTS LIST - ETF2 BOARD

CAPACITORS

2631	4822 122 32542	47nF 10% 63V
2632	4822 122 32542	47nF 10% 63V
2633	4822 122 32927	220nF +80 / -20% 50V
2634	4822 122 32927	220nF +80 / -20% 50V
2635	4822 122 33891	3,3nF 10% 63V
2636	4822 122 33891	3,3nF 10% 63V
2637	5322 121 42498	680nF 5% 63V
2638	5322 121 42498	680nF 5% 63V
2639	5322 122 32531	100pF 5% 50V
2640	5322 122 32531	100pF 5% 50V
2641	4822 124 40246	4,7µF 20% 63V
2642	4822 124 40246	4,7µF 20% 63V
2643	4822 121 43179	18nF 5% 250V
2644	4822 121 43179	18nF 5% 250V
2645	5322 122 32448	10pF 5% 50V
2646	5322 122 32448	10pF 5% 50V
2647	4822 124 40246	4,7µF 20% 63V
2648	4822 124 40246	4,7µF 20% 63V
2691	4822 124 40246	4,7µF 20% 63V
2692	4822 124 41584	100µF 20% 10V
2693	4822 124 81029	100µF 20% 25V
2694	4822 124 81029	100µF 20% 25V
2695	4822 124 41576	2,2µF 20% 50V
2696	4822 124 41576	2,2µF 20% 50V
2701	4822 122 33195	100pF 10% 50V
2702	4822 122 33195	100pF 10% 50V
2703	4822 122 33195	100pF 10% 50V
2704	5322 122 32531	100pF 5% 50V
2705	5322 122 31863	330pF 5% 50V
2706	5322 122 31863	330pF 5% 50V
2707	5322 122 34099	470pF 10% 63V
2708	5322 122 34099	470pF 10% 63V
2709	5322 122 31863	330pF 5% 50V
2710	5322 122 31863	330pF 5% 50V
2711	5322 122 32531	100pF 5% 50V
2712	4822 122 33195	100pF 10% 50V
2713	4822 124 41579	10µF 20% 50V
2714	4822 124 41579	10µF 20% 50V
2715	4822 124 41584	100µF 20% 10V
2715	4822 124 40849	330µF 20% 16V
2716	4822 124 41584	100µF 20% 10V
2716	4822 124 40849	330µF 20% 16V
2717	4822 122 33175	2,2nF 20% 50V
2718	4822 122 33175	2,2nF 20% 50V
2719	4822 122 33893	18nF 10% 63V
2720	4822 122 33893	18nF 10% 63V
2721	4822 122 33342	33nF 10% 63V
2721	4822 122 33177	10nF 20% 50V
2722	4822 122 33342	33nF 10% 63V
2722	4822 122 33177	10nF 20% 50V
2723	4822 126 10326	180pF 5% 63V
2723	4822 122 33342	33nF 10% 63V
2724	4822 126 10326	180pF 5% 63V
2724	4822 122 33342	33nF 10% 63V
2725	5322 126 10794	220pF 5% 63V
2726	5322 126 10794	220pF 5% 63V
2727	4822 122 32535	680pF 10% 63V
2728	4822 122 32535	680pF 10% 63V
2729	4822 122 32541	27nF 10% 63V
2730	4822 122 32541	27nF 10% 63V
2733	5322 122 34099	470pF 10% 63V
2734	5322 122 34099	470pF 10% 63V
2735	4822 126 10002	100nF 20% 25V
2737	5322 122 32654	22nF 10% 63V
2738	5322 122 32654	22nF 10% 63V
2740	5322 122 32654	22nF 10% 63V
2741	4822 126 11714	4,7nF 20%
2752	5322 122 32654	22nF 10% 63V
2760	4822 126 10002	100nF 20% 25V
2761	4822 124 22263	220µF 20% 25V
2762	4822 124 41576	2,2µF 20% 50V
2763	4822 124 41584	100µF 20% 10V
2765	4822 124 40433	47µF 20% 25V
2767	4822 124 41579	10µF 20% 50V
2780	4822 124 41596	22µF 20% 50V
2781	4822 122 33177	10nF 20% 50V
2782	5322 126 10223	4,7nF 10% 63V
2783	5322 121 42386	100nF 5% 63V
2784	4822 121 51305	15nF 10% 50V
2785	4822 124 40242	1µF 20% 63V
2786	5322 122 32531	100pF 5% 50V
2787	4822 122 33342	33nF 10% 63V
2788	5322 122 34123	1nF 10% 50V

RESISTORS

3601	4822 117 11449	2k2 1% 0,1W
3602	4822 117 11449	2k2 1% 0,1W
3604	4822 117 11449	2k2 1% 0,1W
3605	4822 116 52239	120k 5% 0,5W
3606	4822 116 52291	56k 5% 0,5W
3608	4822 116 52239	120k 5% 0,5W
3609	4822 051 20273	27k 5% 0,1W
3610	4822 117 11449	2k2 1% 0,1W
3611	4822 117 11449	2k2 1% 0,1W
3613	4822 117 11449	2k2 1% 0,1W
3614	4822 051 20124	120k 5% 0,1W
3615	4822 051 20563	56k 5% 0,1W
3617	4822 116 52291	56k 5% 0,5W
3618	4822 051 20472	4k7 5% 0,1W
3619	4822 117 10833	10k 1% 0,1W
3620	4822 117 10833	10k 1% 0,1W
3621	4822 051 20473	47k 5% 0,1W
3622	4822 051 20473	47k 5% 0,1W
3623	4822 117 10833	10k 1% 0,1W
3624	4822 051 20472	4k7 5% 0,1W
3625	4822 117 10833	10k 1% 0,1W

ELECTRICAL PARTS LIST - ETF2 BOARD

3626	4822 117 10833	10k 1% 0,1W
3627	4822 051 20473	47k 5% 0,1W
3628	4822 051 20473	47k 5% 0,1W
3629	4822 117 10833	10k 1% 0,1W
3630	4822 051 20273	27k 5% 0,1W
3631	4822 116 83884	47k 5% 0,5W
3632	4822 051 20473	47k 5% 0,1W
3633	4822 051 20332	3k3 5% 0,1W
3634	4822 051 20332	3k3 5% 0,1W
3635	4822 100 11771	Trimmer 20k 30% 0,1W
3636	4822 100 11771	Trimmer 20k 30% 0,1W
3637	4822 051 20473	47k 5% 0,1W
3638	4822 051 20473	47k 5% 0,1W
3639	4822 051 20332	3k3 5% 0,1W
3640	4822 051 20332	3k3 5% 0,1W
3641	4822 100 11771	Trimmer 20k 30% 0,1W
3642	4822 100 11771	Trimmer 20k 30% 0,1W
3643	4822 051 20473	47k 5% 0,1W
3644	4822 051 20473	47k 5% 0,1W
3645	4822 051 20393	39k 5% 0,1W
3646	4822 051 20393	39k 5% 0,1W
3647	4822 051 20332	3k3 5% 0,1W
3648	4822 051 20332	3k3 5% 0,1W
3649	4822 051 20562	5k6 5% 0,1W
3650	4822 051 20562	5k6 5% 0,1W
3651	4822 050 11002	1k 1% 0,4W
3652	4822 051 10102	1k 2% 0,25W
3655	5322 100 11542	Trimmer 4k7 30% 0,1W
3656	5322 100 11542	Trimmer 4k7 30% 0,1W
3657	4822 051 10102	1k 2% 0,25W
3658	4822 050 11002	1k 1% 0,4W
3659	4822 051 20333	33k 5% 0,1W
3660	4822 116 52271	33k 5% 0,5W
3661	4822 051 20474	470k 5% 0,1W
3662	4822 051 20474	470k 5% 0,1W
3663	4822 051 20184	180k 5% 0,1W
3664	4822 051 20184	180k 5% 0,1W
3665	4822 117 11149	82k 1% 0,1W
3666	4822 117 11149	82k 1% 0,1W
3667	4822 051 20473	47k 5% 0,1W
3668	4822 051 20473	47k 5% 0,1W
3679	4822 051 20473	47k 5% 0,1W
3680	4822 051 20472	4k7 5% 0,1W
3681	4822 051 20472	4k7 5% 0,1W
3682	4822 100 11319	Trimmer 4k7 30% 0,1W
3683	4822 051 20822	8k2 5% 0,1W (dolby only)
3683	4822 117 10833	10k 1% 0,1W
3684	4822 100 11319	Trimmer 4k7 30% 0,1W
3685	4822 051 20822	8k2 5% 0,1W
3686	4822 051 20473	47k 5% 0,1W
3687	4822 051 20471	470R 5% 0,1W
3688	4822 051 20104	100k 5% 0,1W
3689	4822 051 20273	27k 5% 0,1W
3690	4822 116 83864	10k 5% 0,5W
3691	4822 116 83864	10k 5% 0,5W
3692	4822 051 20433	43k 5% 0,1W
3693	4822 051 20689	68R 5% 0,1W
3694	4822 052 10109 △	10R 5% 0,33W
3695	4822 051 20689	68R 5% 0,1W
3699	4822 051 20562	5k6 5% 0,1W
3699	4822 051 20332	3k3 5% 0,1W
3701	4822 051 20221	220R 5% 0,1W
3702	4822 051 20221	220R 5% 0,1W
3703	4822 051 20221	220R 5% 0,1W
3704	4822 051 20221	220R 5% 0,1W
3705	4822 116 83872	220R 5% 0,5W
3706	4822 116 83872	220R 5% 0,5W
3707	4822 051 20101	100R 5% 0,1W
3708	4822 051 20101	100R 5% 0,1W
3709	4822 051 20229	22R 5% 0,1W
3709	4822 051 20688	6R80 5% 0,1W
3710	4822 051 20229	22R 5% 0,1W
3710	4822 051 20688	6R80 5% 0,1W
3711	4822 051 20184	180k 5% 0,1W
3712	4822 051 20184	180k 5% 0,1W
3713	4822 117 11449	2k2 1% 0,1W
3714	4822 117 11449	2k2 1% 0,1W
3715	4822 051 20182	1k8 5% 0,1W
3716	4822 051 20182	1k8 5% 0,1W
3717	4822 051 20392	3k9 5% 0,1W
3718	4822 051 20392	3k9 5% 0,1W
3719	4822 051 20822	8k2 5% 0,1W
3720	4822 051 20822	8k2 5% 0,1W
3721	4822 051 20562	5k6 5% 0,1W
3722	4822 051 20562	5k6 5% 0,1W
3723	4822 117 11383	12k 1% 0,1W
3724	4822 117 11383	12k 1% 0,1W
3725	4822 051 20224	220k 5% 0,1W
3725	4822 051 10102	1k 2% 0,25W
3726	4822 051 20224	220k 5% 0,1W
3726	4822 051 10102	1k 2% 0,25W
3727	4822 051 20562	5k6 5% 0,1W
3728	4822 051 20562	5k6 5% 0,1W
3729	4822 051 20272	2k7 5% 0,1W
3730	4822 051 20272	2k7 5% 0,1W
3731	4822 051 20562	5k6 5% 0,1W
3731	4822 051 20682	6k8 5% 0,1W
3732	4822 051 20562	5k6 5% 0,1W
3732	4822 051 20682	6k8 5% 0,1W
3733	4822 051 20472	4k7 5% 0,1W
3733	4822 051 20122	1k2 5% 0,1W
3734	4822 051 20472	4k7 5% 0,1W
3734	4822 051 20122	1k2 5% 0,1W
3735	4822 051 20183	18k 5% 0,1W
3735	4822 051 20223	22k 5% 0,1W
3736	4822 051 20183	18k 5% 0,1W

ELECTRICAL PARTS LIST - ETF2 BOARD

RESISTORS

3736	4822 051 20223	22k 5% 0,1W
3741	4822 051 10102	1k 2% 0,25W
3742	4822 051 20104	100k 5% 0,1W
3743	4822 051 20182	1k8 5% 0,1W
3743	4822 117 11139	1k5 1% 0,1W
3744	4822 051 20182	1k8 5% 0,1W
3744	4822 117 11139	1k5 1% 0,1W
3745	4822 116 52283	4k7 5% 0,5W
3745	4822 116 52269	3k3 5% 0,5W
3746	4822 051 20472	4k7 5% 0,1W
3746	4822 051 20332	3k3 5% 0,1W
3759	4822 051 20273	27k 5% 0,1W
3760	4822 051 20473	47k 5% 0,1W
3761	4822 117 10833	10k 1% 0,1W
3762	4822 051 20821	820R 5% 0,1W
3763	4822 051 20184	180k 5% 0,1W
3764	4822 116 83883	470R 5% 0,5W
3765	4822 051 20393	39k 5% 0,1W
3766	4822 051 20475	4M7 5% 0,1W
3767	4822 116 52219	330R 5% 0,5W
3768	4822 117 10833	10k 1% 0,1W
3769	4822 117 10833	10k 1% 0,1W
3770	4822 117 11139	1k5 1% 0,1W
3771	4822 051 20122	1k2 5% 0,1W
3772	4822 051 20682	6k8 5% 0,1W
3773	5322 100 11542	Trimmer 4k7 30% 0,1W
3774	4822 116 52303	8k2 5% 0,5W
3775	4822 051 20478	4R7 5% 0,1W
3776	4822 051 20682	6k8 5% 0,1W
3777	4822 117 10353	150R 1% 0,1W
3778	4822 052 10688 ⚠	6R8 5% 0,33W
3779	4822 051 20334	330k 5% 0,1W
3780	4822 051 20105	1M 5% 0,1W
3781	4822 051 20475	4M7 5% 0,1W
3782	4822 051 20472	4k7 5% 0,1W
3783	4822 051 20472	4k7 5% 0,1W
3784	4822 051 20153	15k 5% 0,1W
3785	5322 100 11539	Trimmer 100k 30% 0,1W
3786	4822 117 11449	2k2 1% 0,1W
3787	4822 116 52235	1M 5% 0,5W
3788	4822 051 20105	1M 5% 0,1W
3789	4822 051 20223	22k 5% 0,1W
3790	4822 051 20473	47k 5% 0,1W
3796	4822 051 10102	1k 2% 0,25W
3797	4822 051 20104	100k 5% 0,1W
4593	4822 051 20008	0R Jumper 0805
4606	4822 051 20008	0R Jumper 0805
4607	4822 051 20008	0R Jumper 0805
4608	4822 051 20008	0R Jumper 0805
4609	4822 051 20008	0R Jumper 0805
4610	4822 051 20008	0R Jumper 0805
4611	4822 051 20008	0R Jumper 0805
4612	4822 051 20008	0R Jumper 0805
4613	4822 051 20008	0R Jumper 0805
4614	4822 051 20008	0R Jumper 0805
4615	4822 051 20008	0R Jumper 0805
4616	4822 051 20008	0R Jumper 0805
4617	4822 051 20008	0R Jumper 0805
4618	4822 051 20008	0R Jumper 0805
4619	4822 051 20008	0R Jumper 0805
4620	4822 051 20008	0R Jumper 0805
4621	4822 051 20008	0R Jumper 0805
4622	4822 051 20008	0R Jumper 0805
4623	4822 051 20008	0R Jumper 0805
4624	4822 051 20008	0R Jumper 0805
4625	4822 051 20008	0R Jumper 0805
4626	4822 051 20008	0R Jumper 0805
4627	4822 051 20008	0R Jumper 0805
4628	4822 051 20008	0R Jumper 0805
4629	4822 051 20008	0R Jumper 0805
4630	4822 051 20008	0R Jumper 0805
4631	4822 051 20008	0R Jumper 0805
4633	4822 051 20008	0R Jumper 0805
4634	4822 051 20008	0R Jumper 0805
4635	4822 051 20008	0R Jumper 0805
4636	4822 051 20008	0R Jumper 0805
4637	4822 051 20008	0R Jumper 0805
4638	4822 051 20008	0R Jumper 0805
4639	4822 051 20008	0R Jumper 0805
4640	4822 051 20008	0R Jumper 0805
4641	4822 051 20008	0R Jumper 0805
4643	4822 051 20008	0R Jumper 0805
4644	4822 051 20008	0R Jumper 0805
4645	4822 051 20008	0R Jumper 0805
4646	4822 051 20008	0R Jumper 0805
4647	4822 051 20008	0R Jumper 0805
4799	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5631	4822 156 21725	MPX Filter LXD-210
5632	4822 156 21725	MPX Filter LXD-210
5701	4822 156 20946	Osc Coil 100kHz
5702	4822 156 21721	Coil 2,2uH 10%
5703	4822 156 21721	Coil 2,2uH 10%

DIODES

6651	4822 130 30621	1N4148
6760	4822 130 34233	BZX79-C5V1
6770	4822 130 30621	1N4148
6771	4822 130 30621	1N4148
6772	4822 130 30621	1N4148
6773	4822 130 30621	1N4148
6774	4822 130 30621	1N4148
6775	4822 130 30621	1N4148
6776	4822 130 30621	1N4148
6777	4822 130 34382	BZX79-C8V2

6790	5322 130 30684	1N4002
6791	5322 130 30684	1N4002

TRANSISTORS & INTEGRATED CIRCUITS

7630	4822 209 90406	CXA1101M
7631	5322 130 42136	BC848C
7632	5322 130 42136	BC848C
7633	5322 130 42136	BC848C
7634	5322 130 42136	BC848C
7640	4822 209 83357	NJM4560M
7650	5322 130 42136	BC848C
7651	4822 130 42513	BC858C
7652	5322 130 42136	BC848C
7653	5322 130 60123	BC807-40
7654	5322 130 42136	BC848C
7655	5322 130 60123	BC807-40
7661	5322 130 60123	BC807-40
7662	5322 130 42136	BC848C
7663	4822 130 42513	BC858C
7665	4822 130 42513	BC858C
7666	5322 130 42136	BC848C
7710	4822 209 32919	HEF4952BT
7720	4822 209 32918	AN7318S
7730	4822 209 32919	HEF4952BT
7740	4822 209 32919	HEF4952BT
7750	5322 209 11306	HEF4094BT
7760	4822 209 32919	HEF4952BT
7780	5322 130 42136	BC848C
7781	5322 130 42136	BC848C
7782	5322 130 60068	BC558C
7783	5322 130 42136	BC848C
7784	4822 130 60373	BC856B
7785	4822 130 63494	J111
7786	4822 130 63494	J111
7787	5322 130 42136	BC848C
7788	5322 130 42136	BC848C

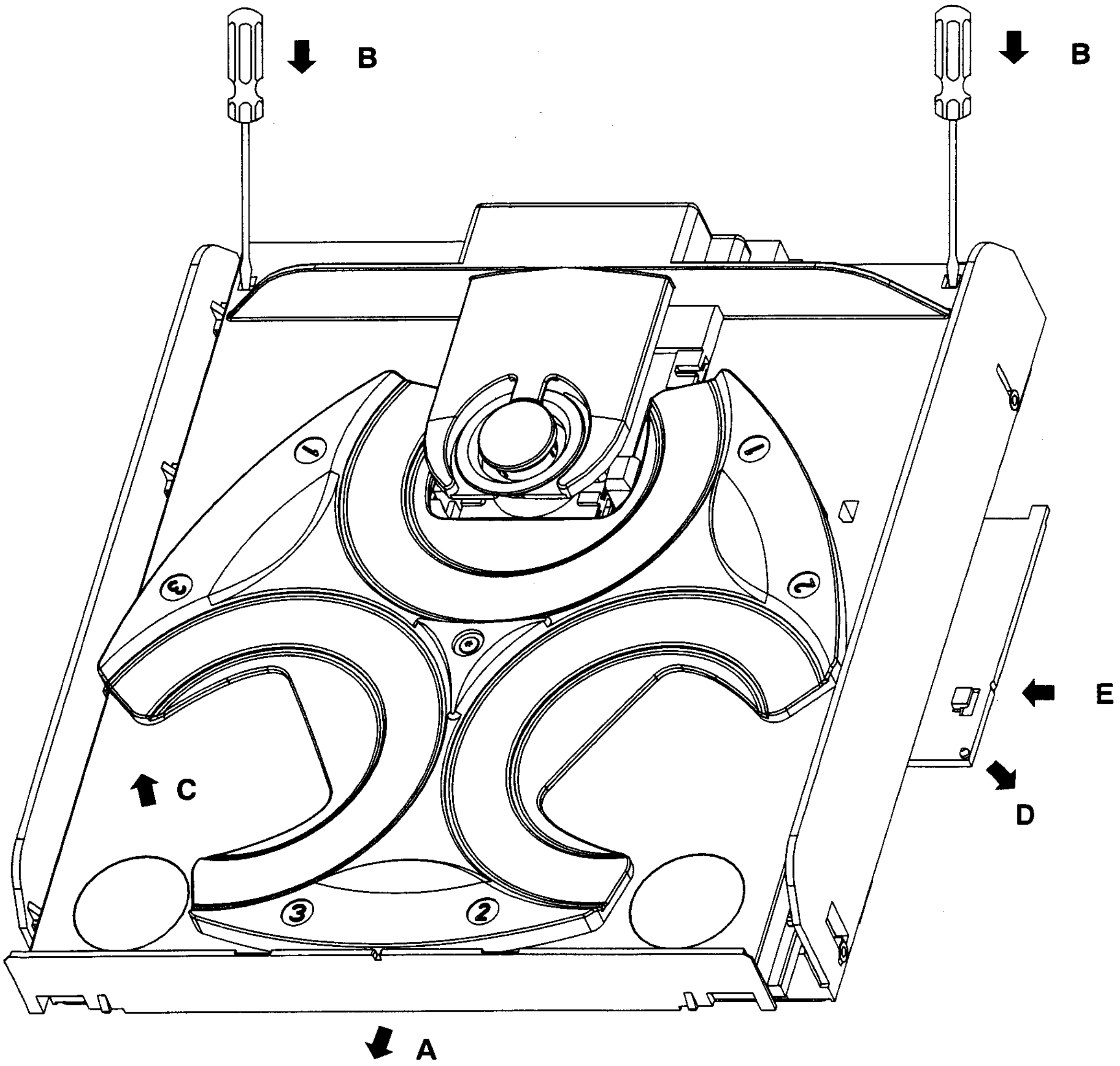
NOTE: Only the parts mentioned in this list are normal service spare parts.

CDC3 MODULE BOARD

TABLE OF CONTENTS

Demounting Hints 10-2
Servicing Hints 10-3
CD servo servicing hints 10-4
Service position 10-5
Lubricating Instructions 10-6
Wiring Diagram 10-8
Block Diagram 10-9
Circuit Diagram 10-10
Component Layout 10-11
Exploded View 10-12
Partslist 10-14

DEMOUNTING HINTS



DEMOUNTING OF DRAWER

⇒ **A** Pull drawer outwards
⇒ **B** Unlock drawer with srcrewdriver
⇒ **C** Lift drawer to demount from chassis

DEMOUNTING OF FLEX PLATE

⇒ **D** Lift plate to unlock pin from bottom plate
⇒ **E** Move plate inwards to demount from bottom plate

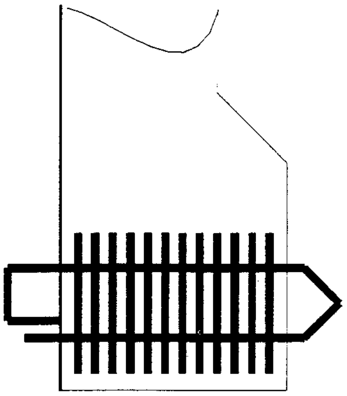
SERVICING HINTS

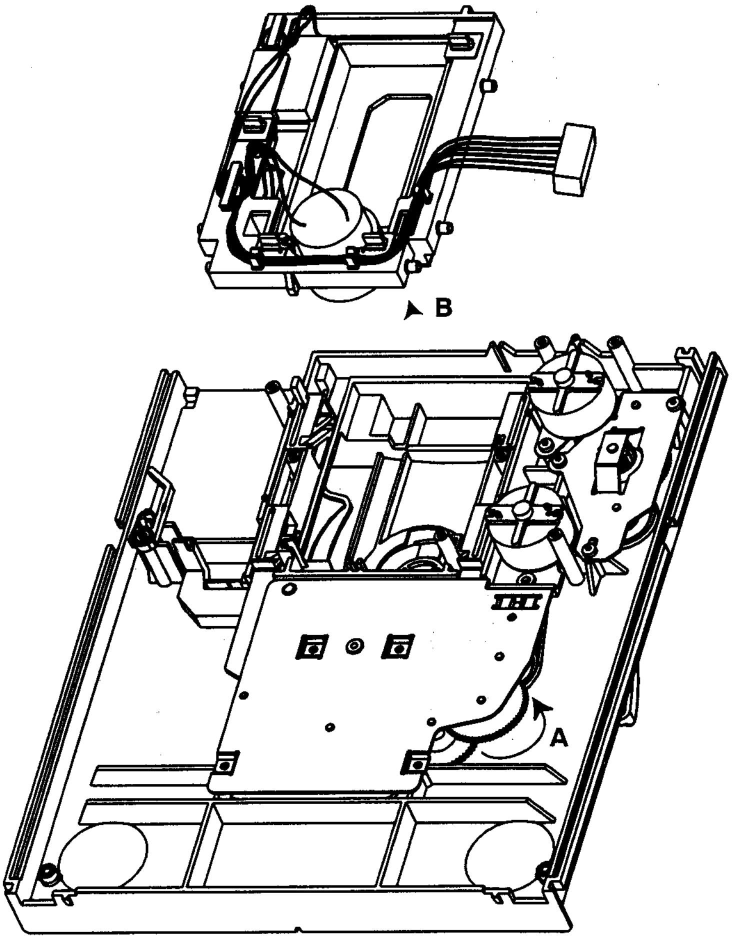
REPLACEMENT OF CDM-12.1

See also exploded view of changer mechanism.

1. Demount flex plate (140).
2. Demount printboard: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CDM from PCB. Put paperclip on flexfoil to protect CDM against laser damage.
4. Remove 2 screws 107 and 108 and demount CDM lockings 105 and 106.
5. Turn gearwheel 42 of disc-change-mechanism by finger to move CDM-support in upper position(position of carrousel between 2 discs during changing). **A**
6. Demount CDM-support 95. **B**
7. Replace CDM 100. The wire tree of JST connector has to be desoldered and resoldered on the new CDM.

CDM flex foil





MOUNTING OF CARROUSEL

1. Turn gearwheel 42 of disc change mechanism by finger until CDM is in play position.
2. Mount carrousel 115 so that disc is positioned right on the turntable. Carrousel positionnumber doesn't matter.

CD SERVO SERVICE HINTS

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CDM-ELECTRONICS WHEN CONNECTION IS MADE TO A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE
- SWITCH OFF POWER SUPPLY
- ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:

1. Disconnect old CDM flexfoil from printed board
2. Connect paper-clip to CDM flexfoil to short-circuit flexfoil (fig. 1)
3. Short-circuit printed board with brass-sheet (4822 321 11197) plugged into the flexfoil connector (fig. 2)
4. Remove old CDM mechanism
5. Position new CDM mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CDM
8. Connect new flexfoil to print connector (fig. 3)

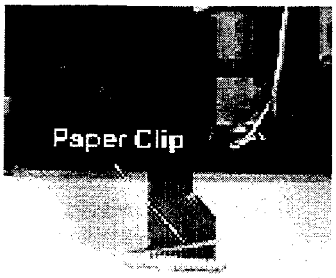


Figure 1

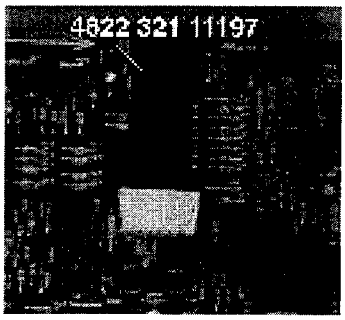


Figure 2

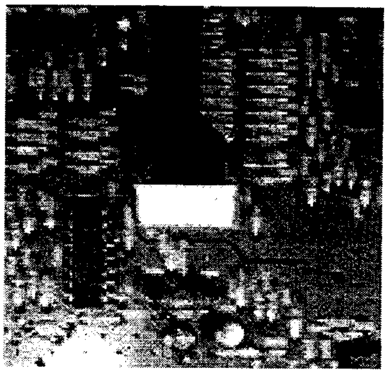
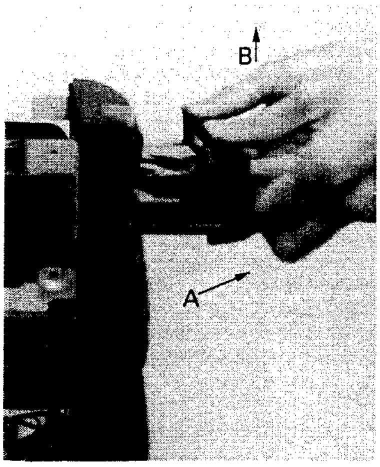
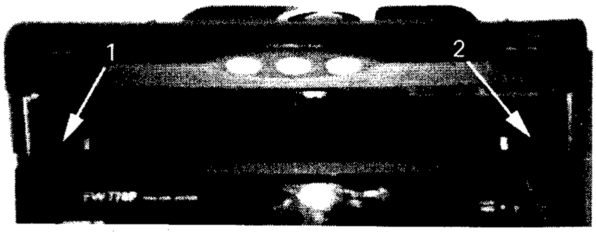


Figure 3

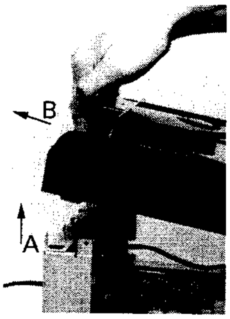
Dismantling Hints for CDC Module



1) Remove the CDC Cover as indicated

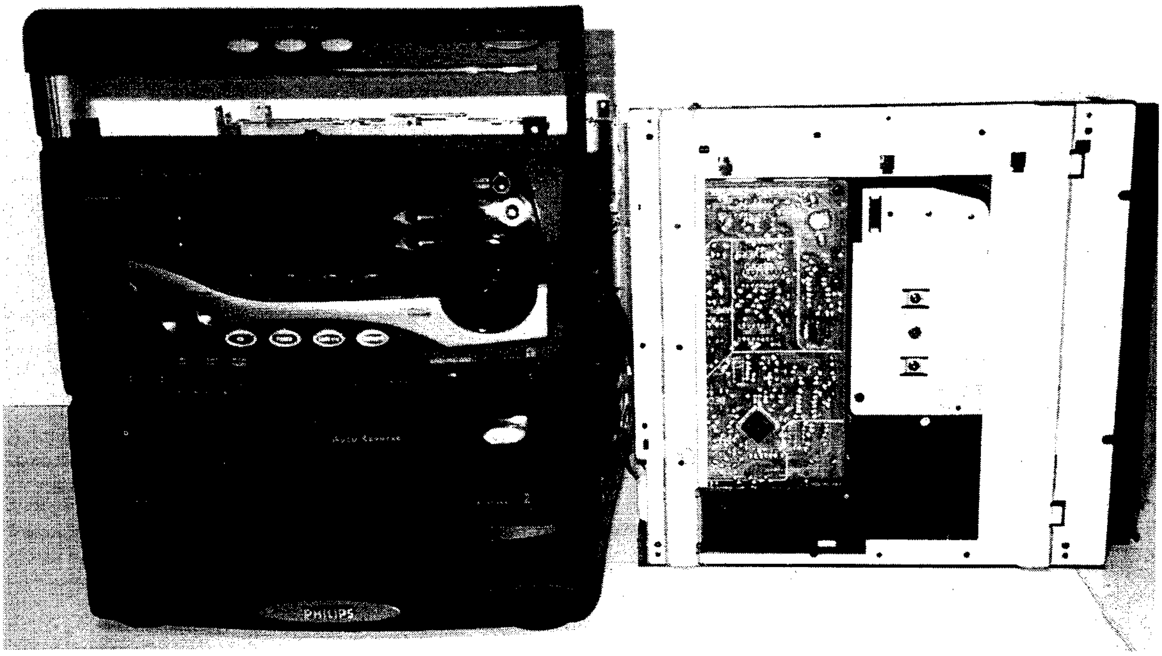


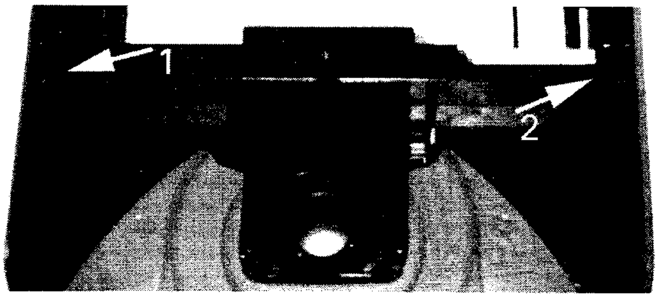
2) Remove the 2 hidden screws



3) Remove the bacj screws, lift-up the Module and pull it out

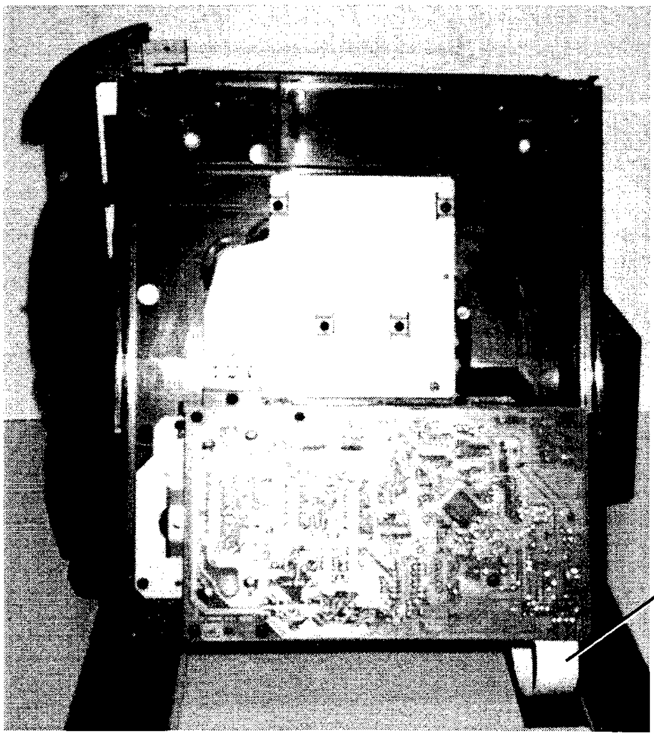
Service Position A





1) Press down the tray catches at position 1 & 2 before pulling the tray out

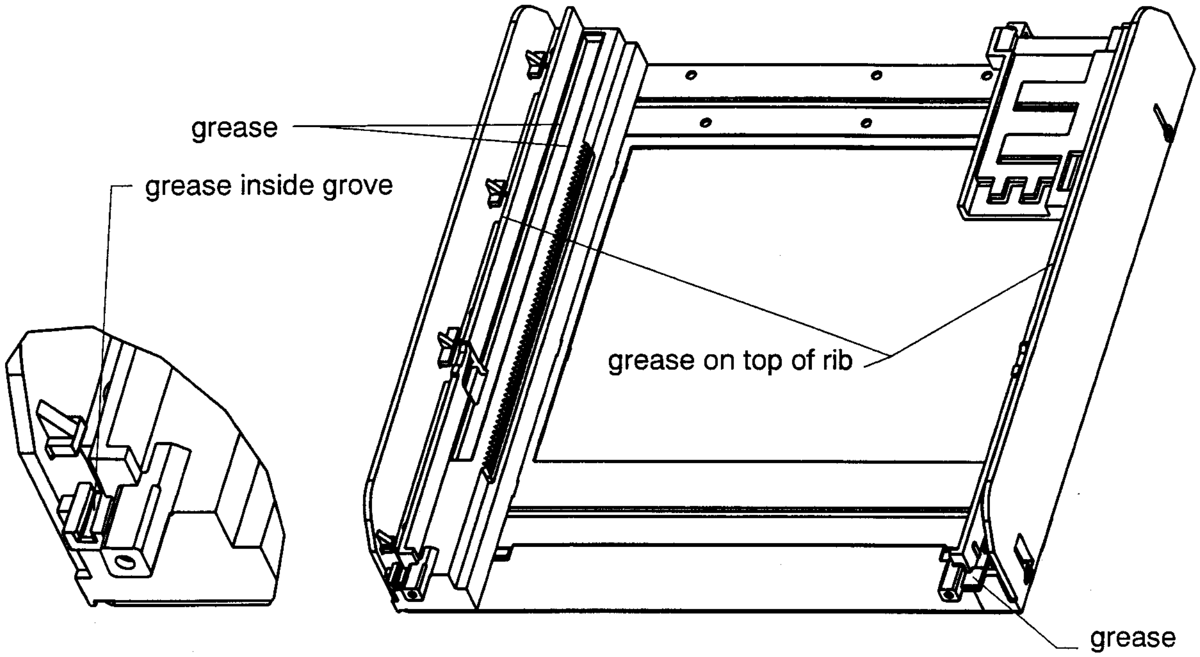
Service Position B



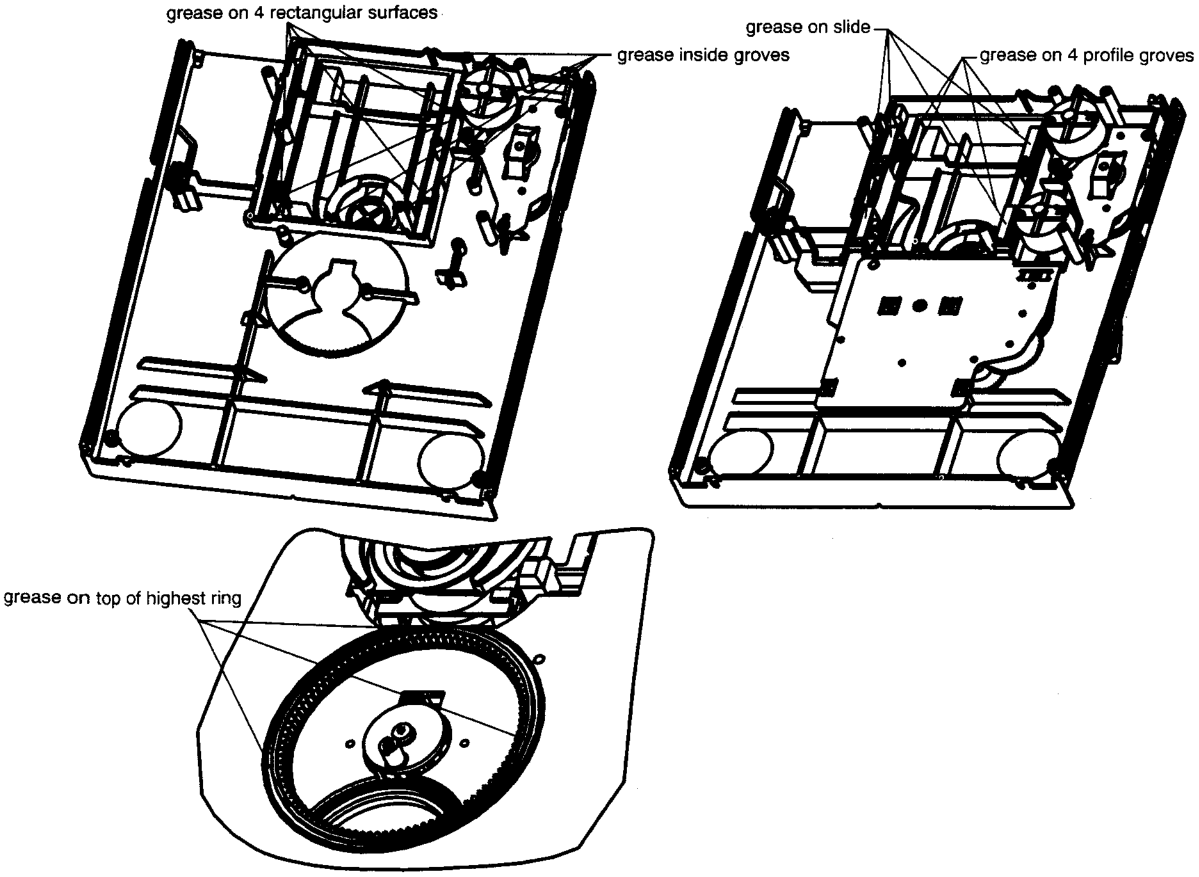
Be careful not to damage this flex cable

LUBRICATING INSTRUCTIONS

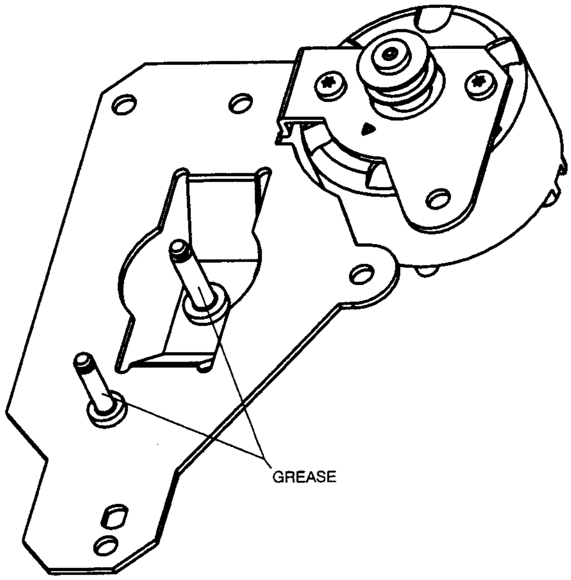
CHASSIS


grease
grease inside grove
grease on top of rib
grease

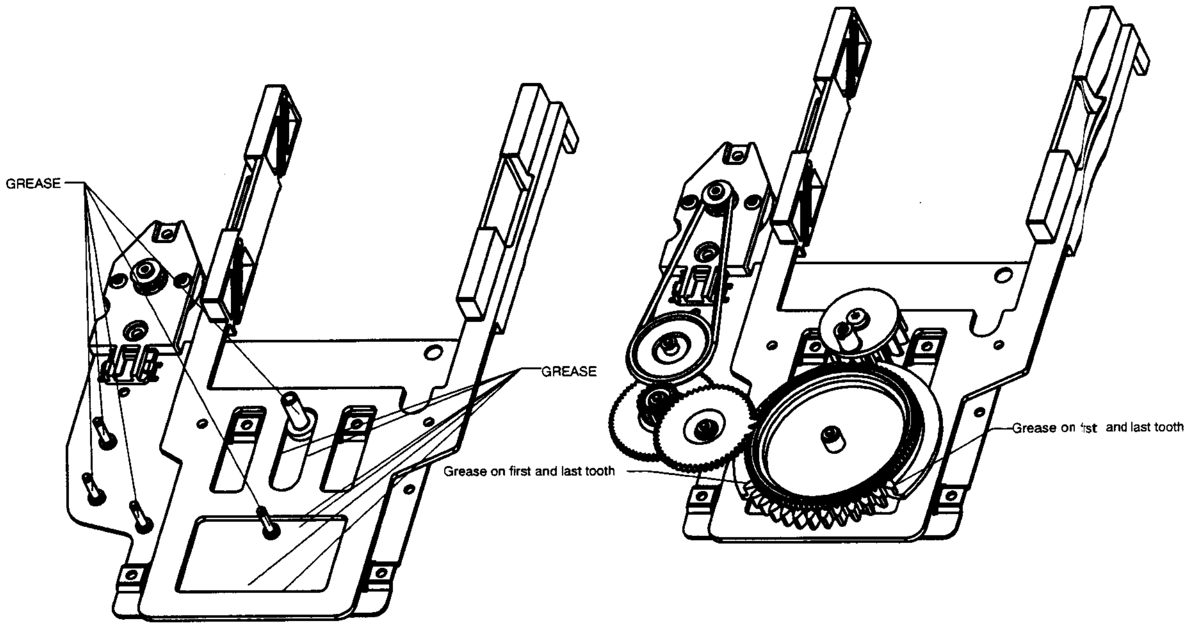
DRAWER


grease on 4 rectangular surfaces
grease inside groves
grease on slide
grease on 4 profile groves
grease on top of highest ring

DRAWER MECHANISM

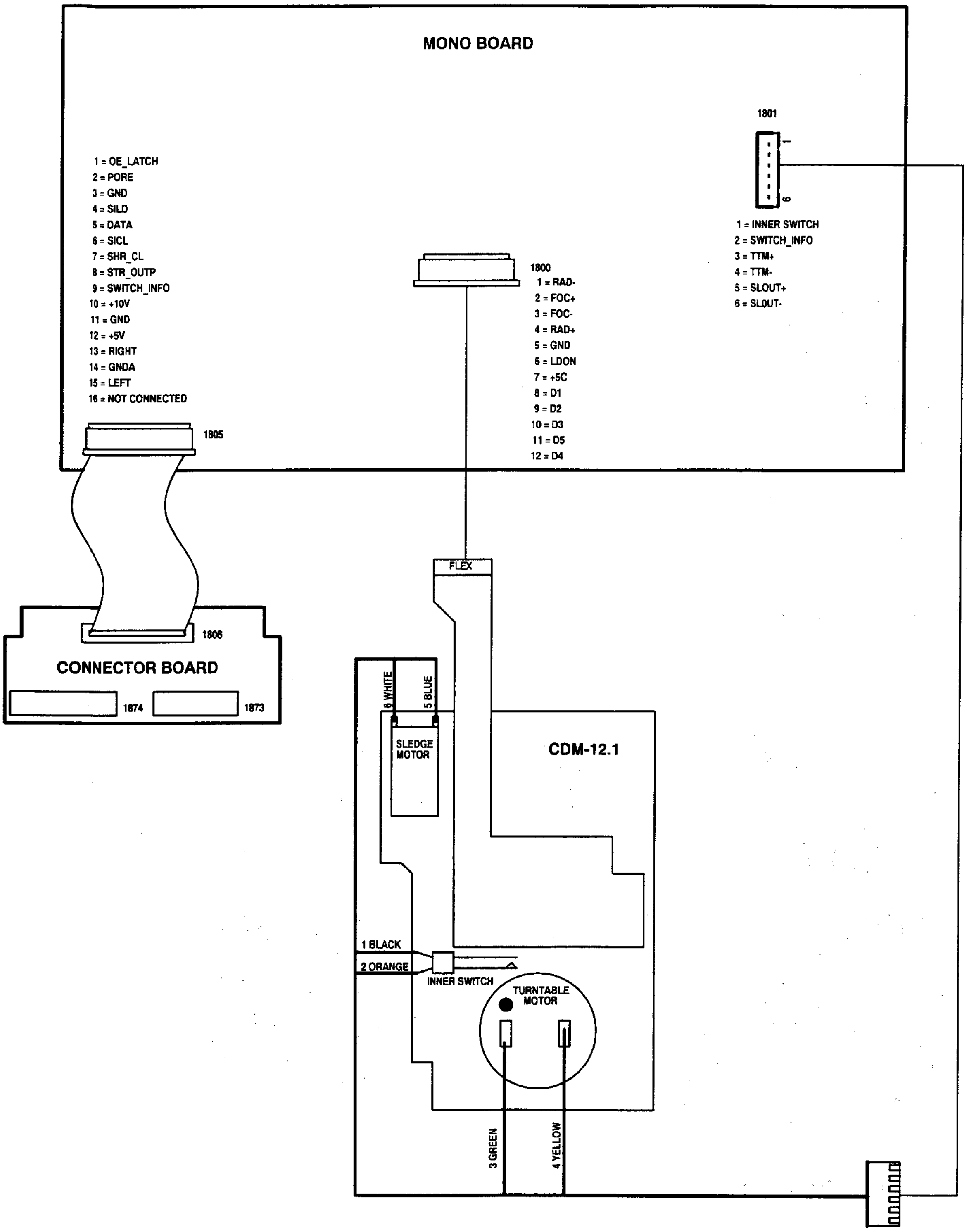


DISC-CHANGE MECHANISM

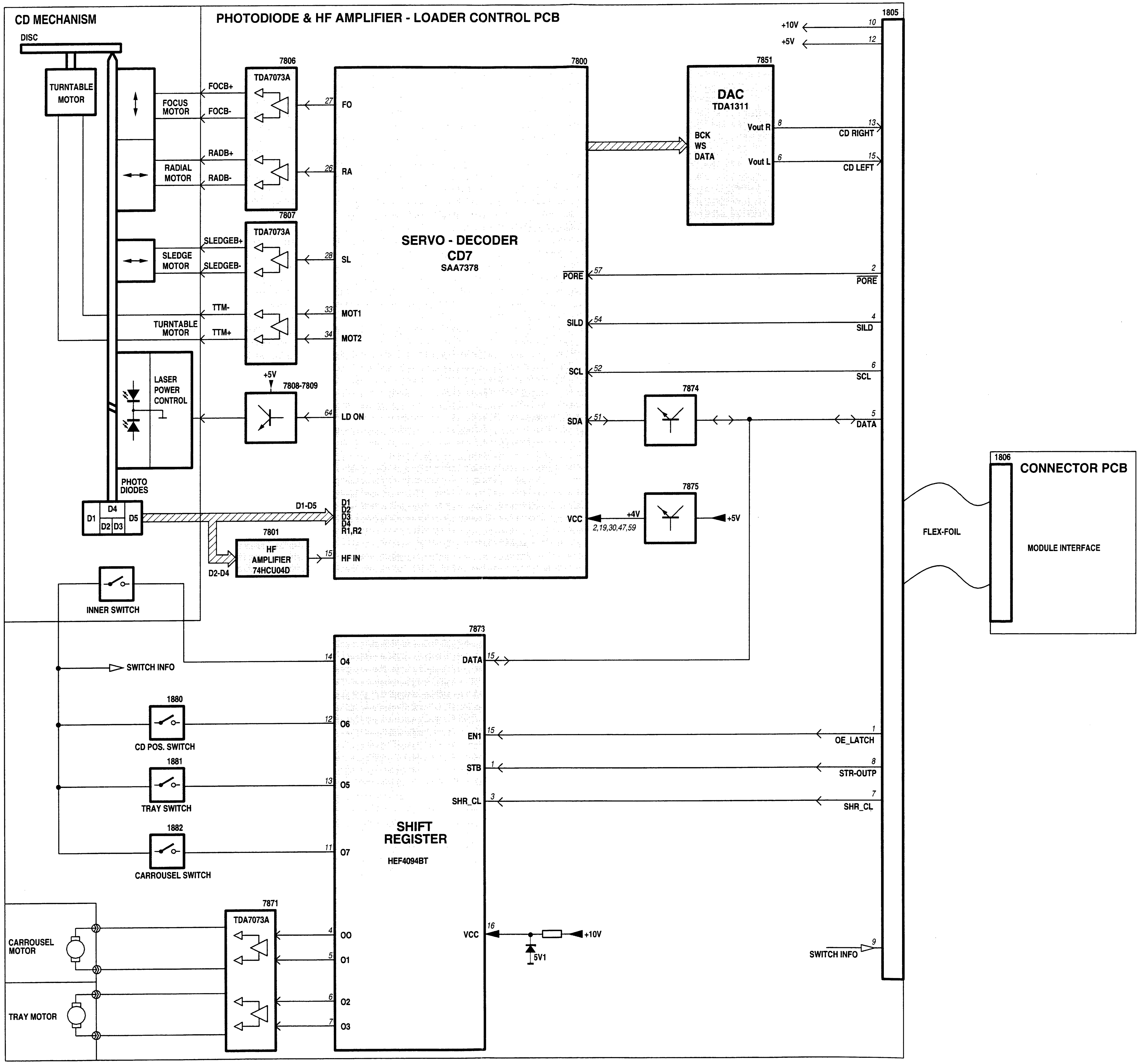

GREASE
GREASE
Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

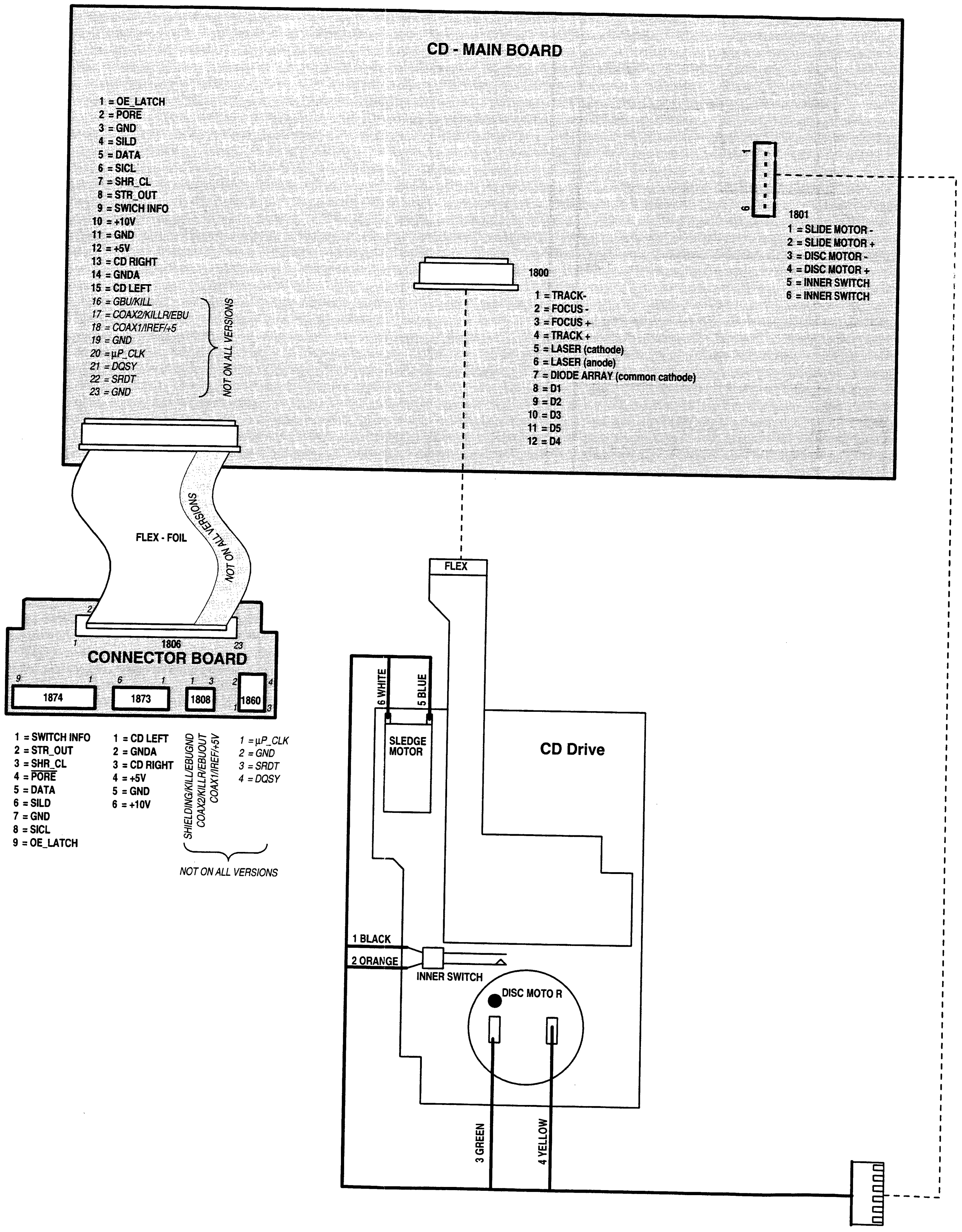
WIRING DIAGRAM


MONO BOARD
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUTP
9 = SWITCH_INFO
10 = +10V
11 = GND
12 = +5V
13 = RIGHT
14 = GNDA
15 = LEFT
16 = NOT CONNECTED
1805
1800
1 = RAD-
2 = FOC+
3 = FOC-
4 = RAD+
5 = GND
6 = LDON
7 = +5C
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1801
1
6
1 = INNER SWITCH
2 = SWITCH_INFO
3 = TTM+
4 = TTM-
5 = SLOUT+
6 = SLOUT-
1806
CONNECTOR BOARD
1874
1873
FLEX
6 WHITE
5 BLUE
SLEDGE MOTOR
CDM-12.1
1 BLACK
2 ORANGE
INNER SWITCH
TURNTABLE MOTOR
3 GREEN
4 YELLOW

Blockdiagram


CD MECHANISM
DISC
TURNTABLE MOTOR
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER POWER CONTROL
PHOTO DIODES
D1
D2
D3
D4
D5
FOCB+
FOCB-
RADB+
RADB-
SLEDGEB+
SLEDGEB-
TTM-
TTM+
7806
TDA7073A
7807
TDA7073A
+5V
7808-7809
D1-D5
D2-D4
7801
HF AMPLIFIER 74HCU04D
7800
SERVO - DECODER
CD7
SAA7378
FO
RA
SL
MOT1
MOT2
LD ON
D1 D2 D3 D4 R1,R2
HF IN
PORE
SILD
SCL
SDA
VCC
27
26
28
33
34
64
15
57
54
52
51
+4V
2,19,30,47,59
7851
DAC
TDA1311
BCK
WS
DATA
Vout R
Vout L
8
6
7874
7875
+5V
1805
+10V
+5V
10
12
13
CD RIGHT
15
CD LEFT
2
PORE
4
SILD
6
SCL
5
DATA
INNER SWITCH
SWITCH INFO
1880
CD POS. SWITCH
1881
TRAY SWITCH
1882
CARROUSEL SWITCH
7873
O4
O6
O5
O7
14
12
13
11
DATA
15
EN1
15
STB
1
SHR_CL
3
SHIFT REGISTER
HEF4094BT
VCC
16
5V1
+10V
1
OE_LATCH
8
STR-OUTP
7
SHR_CL
9
SWITCH INFO
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
4
O0
5
O1
6
O2
7
O3
FLEX-FOIL
1806
CONNECTOR PCB
MODULE INTERFACE

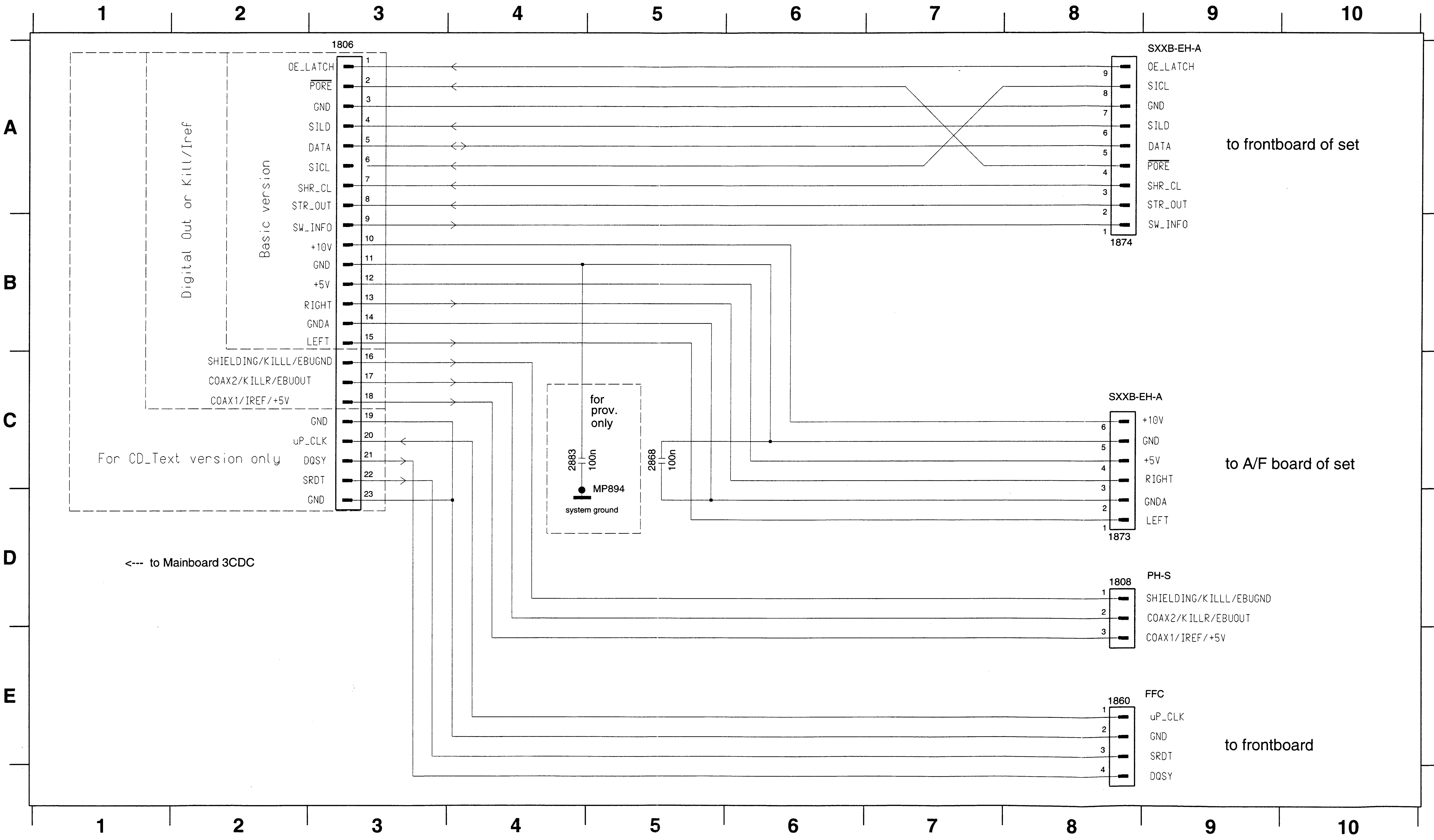
Wiring diagram


CD - MAIN BOARD
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUT
9 = SWICH INFO
10 = +10V
11 = GND
12 = +5V
13 = CD RIGHT
14 = GNDA
15 = CD LEFT
16 = GBU/KILL
17 = COAX2/KILLR/EBU
18 = COAX1/IREF/+5
19 = GND
20 = µP_CLK
21 = DQSY
22 = SRDT
23 = GND
NOT ON ALL VERSIONS
1800
1 = TRACK-
2 = FOCUS -
3 = FOCUS +
4 = TRACK +
5 = LASER (cathode)
6 = LASER (anode)
7 = DIODE ARRAY (common cathode)
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1
6
1801
1 = SLIDE MOTOR -
2 = SLIDE MOTOR +
3 = DISC MOTOR -
4 = DISC MOTOR +
5 = INNER SWITCH
6 = INNER SWITCH
FLEX - FOIL
NOT ON ALL VERSIONS
2
1
1806
23
CONNECTOR BOARD
9
1
1874
6
1
1873
1
3
1808
2
4
1860
1
3
1 = SWITCH INFO
2 = STR_OUT
3 = SHR_CL
4 = PORE
5 = DATA
6 = SILD
7 = GND
8 = SICL
9 = OE_LATCH
1 = CD LEFT
2 = GNDA
3 = CD RIGHT
4 = +5V
5 = GND
6 = +10V
SHIELDING/KILL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
1 = µP_CLK
2 = GND
3 = SRDT
4 = DQSY
NOT ON ALL VERSIONS
FLEX
6 WHITE
5 BLUE
SLEDGE MOTOR
CD Drive
1 BLACK
2 ORANGE
INNER SWITCH
DISC MOTO R
3 GREEN
4 YELLOW

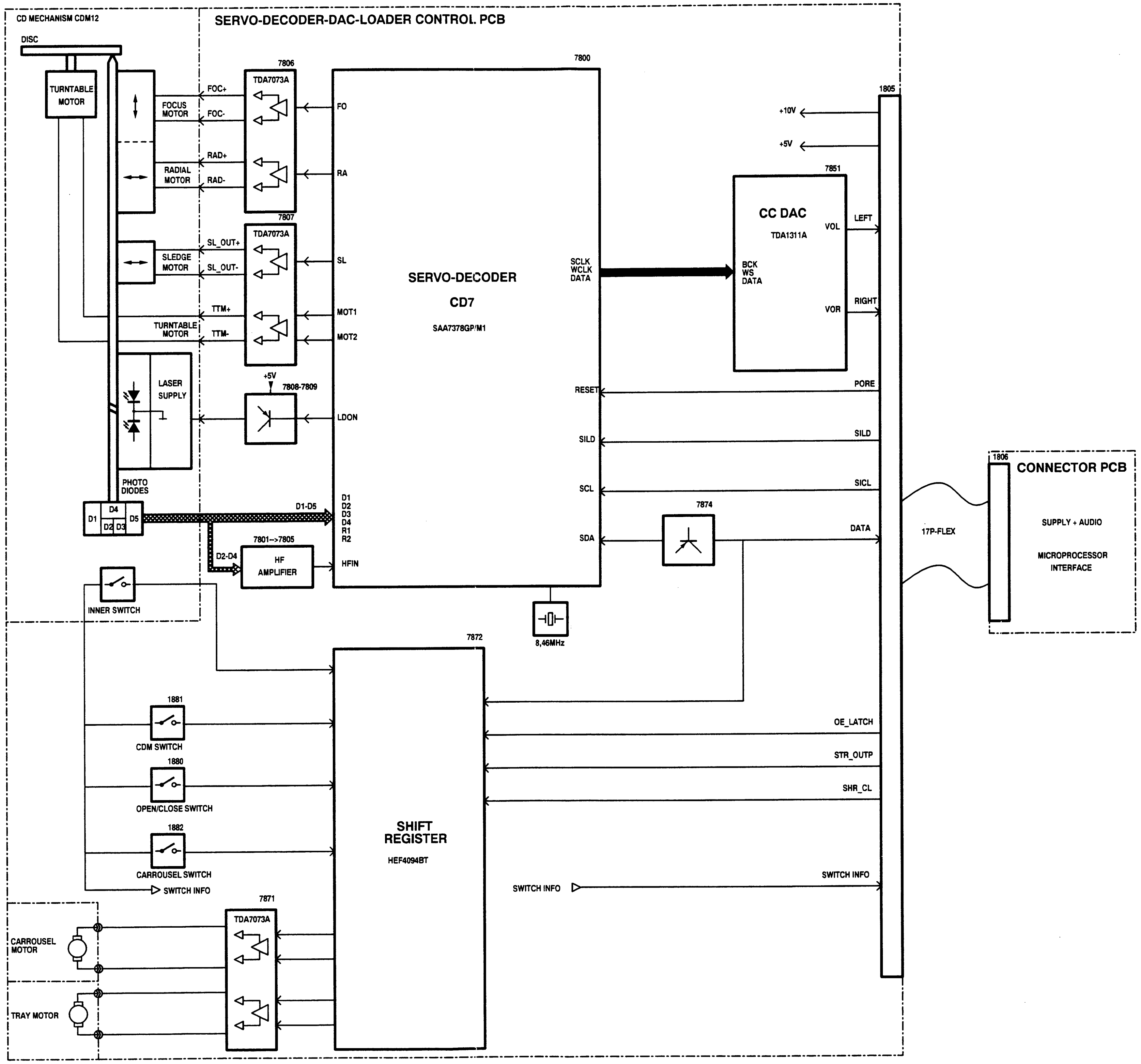
Remarks

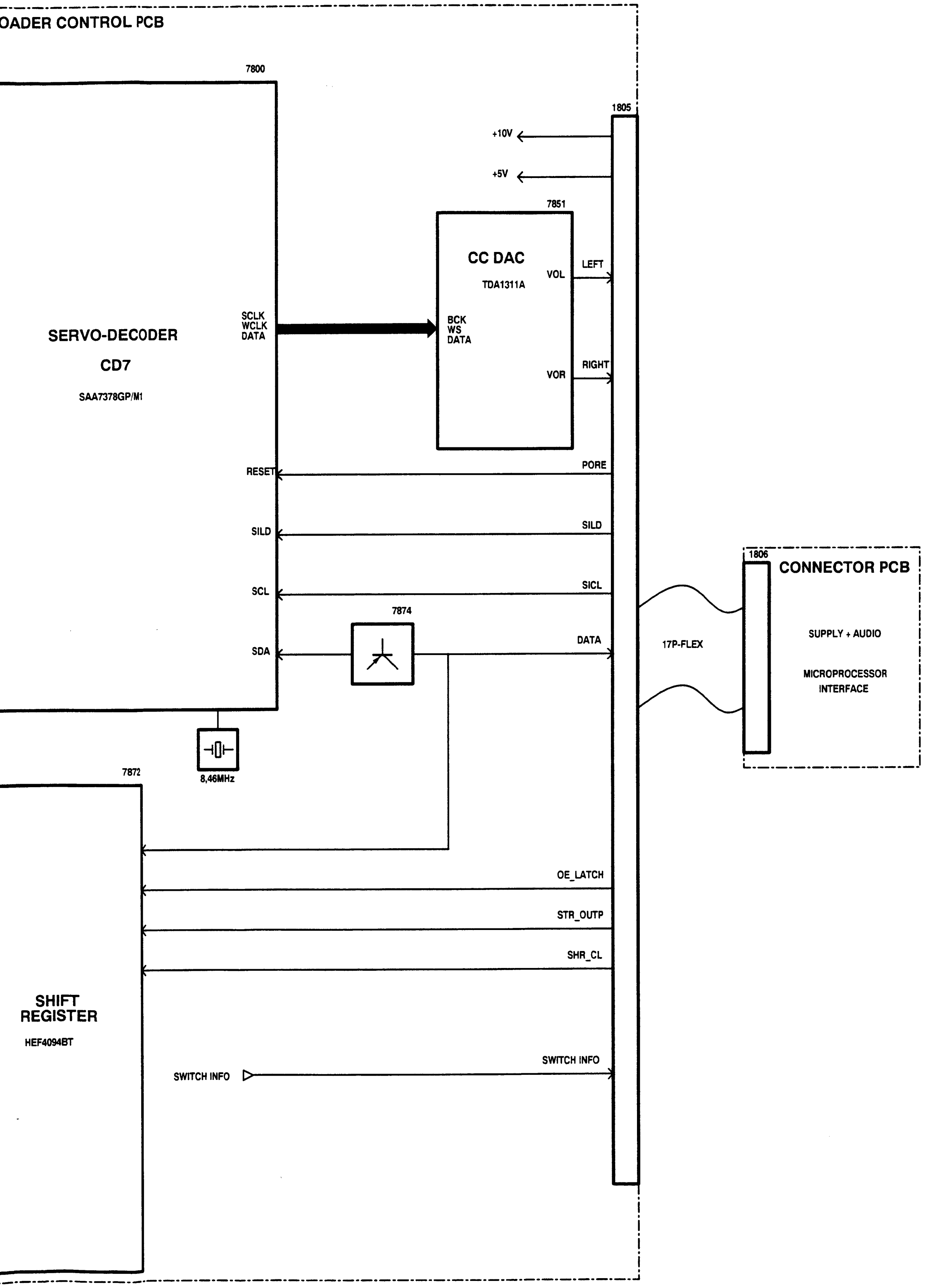
Circuit diagram Connector Board

1806	A3		1860	E8		1874	B8		2883	C4
1808	D8		1873	D8		2868	C5			

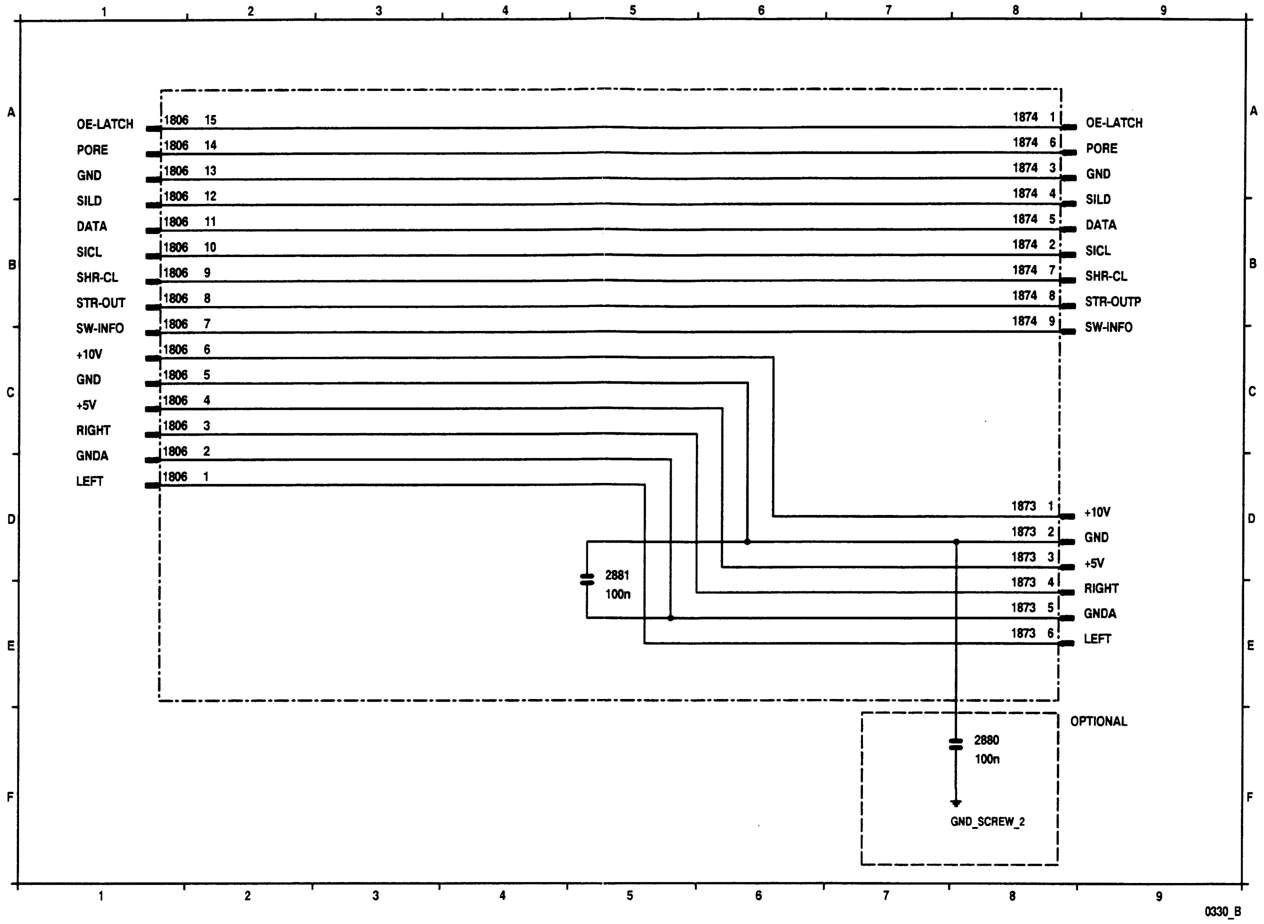

1 2 3 4 5 6 7 8 9 10
A B C D E
1806
OE_LATCH
PORE
GND
SILD
DATA
SICL
SHR_CL
STR_OUT
SW_INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
GND
uP_CLK
DQSY
SRDT
GND
Basic version
Digital Out or Kill/Iref
For CD_Text version only
<--- to Mainboard 3CDC
SXXB-EH-A
1874
to frontboard of set
for prov. only
2883 100n
2868 100n
MP894
system ground
SXXB-EH-A
+10V
GND
+5V
RIGHT
GNDA
LEFT
1873
to A/F board of set
1808
PH-S
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
1860
FFC
uP_CLK
GND
SRDT
DQSY
to frontboard

BLOCK DIAGRAM

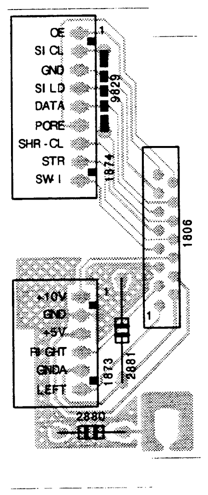

CD MECHANISM CDM12
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER SUPPLY
PHOTO DIODES
D1
D2
D3
D4
D5
INNER SWITCH
SERVO-DECODER-DAC-LOADER CONTROL PCB
FOC+
FOC-
RAD+
RAD-
SL_OUT+
SL_OUT-
TTM+
TTM-
7806
TDA7073A
7807
TDA7073A
+5V
7808-7809
D1-D5
D2-D4
7801-->7805
HF AMPLIFIER
7800
FO
RA
SL
MOT1
MOT2
LDON
D1
D2
D3
D4
R1
R2
HFIN
SERVO-DECODER
CD7
SAA7378GP/M1
SCLK
WCLK
DATA
RESET
SILD
SCL
SDA
8,46MHz
7851
CC DAC
TDA1311A
BCK
WS
DATA
VOL
VOR
LEFT
RIGHT
+10V
+5V
1805
PORE
SILD
SICL
DATA
7874
OE_LATCH
STR_OUTP
SHR_CL
SWITCH INFO
SWITCH INFO
7872
SHIFT REGISTER
HEF4094BT
1881
CDM SWITCH
1880
OPEN/CLOSE SWITCH
1882
CARROUSEL SWITCH
SWITCH INFO
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR INTERFACE


OADER CONTROL PCB
7800
1805
+10V
+5V
7851
CC DAC
TDA1311A
VOL
VOR
LEFT
RIGHT
SERVO-DECODER
CD7
SAA7378GP/M1
SCLK
WCLK
DATA
BCK
WS
DATA
RESET
PORE
SILD
SILD
SCL
SICL
7874
SDA
DATA
8,46MHz
7872
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR
INTERFACE
OE_LATCH
STR_OUTP
SHR_CL
SHIFT
REGISTER
HEF4094BT
SWITCH INFO
SWITCH INFO

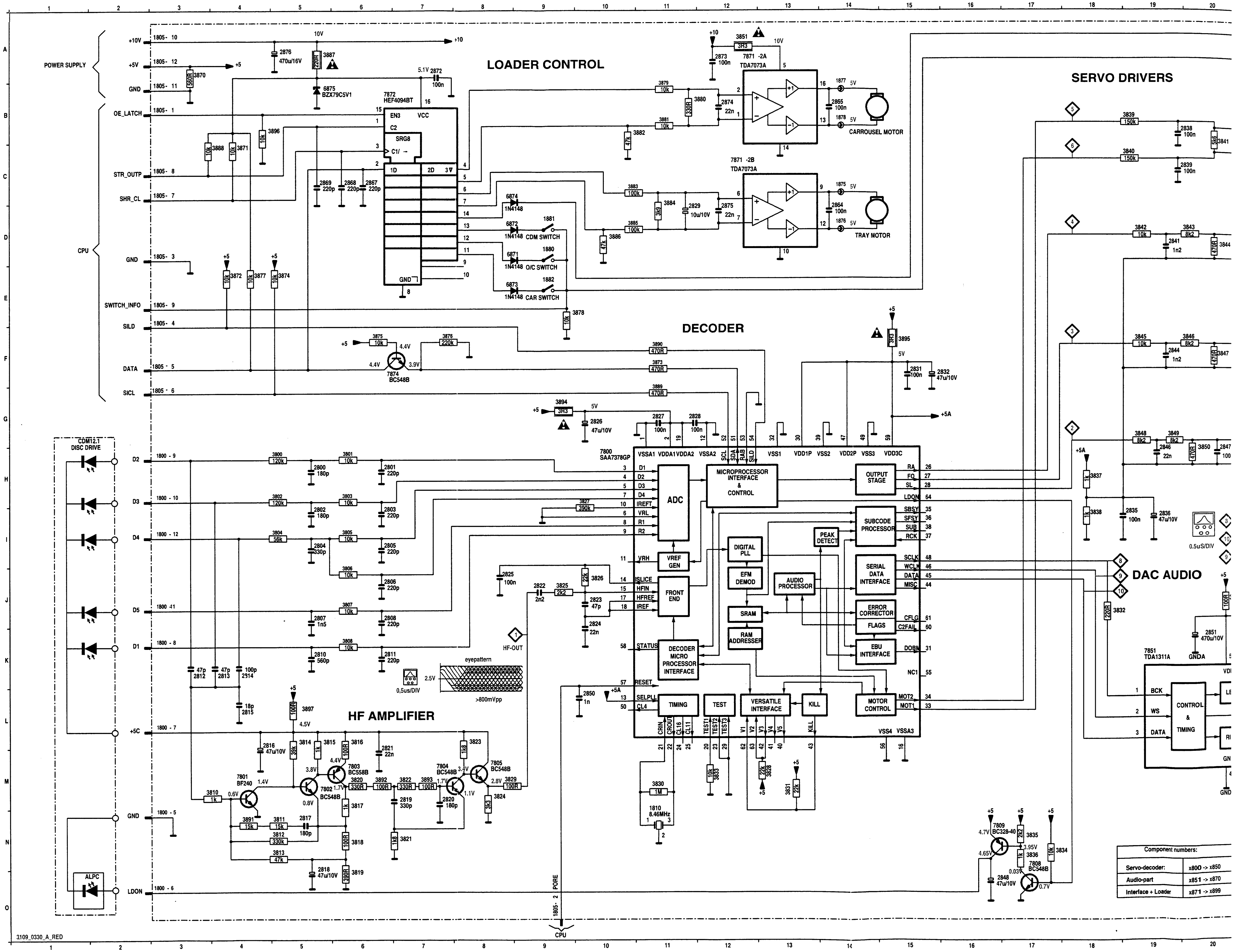
CONNECTOR WIRING AND LAYOUT

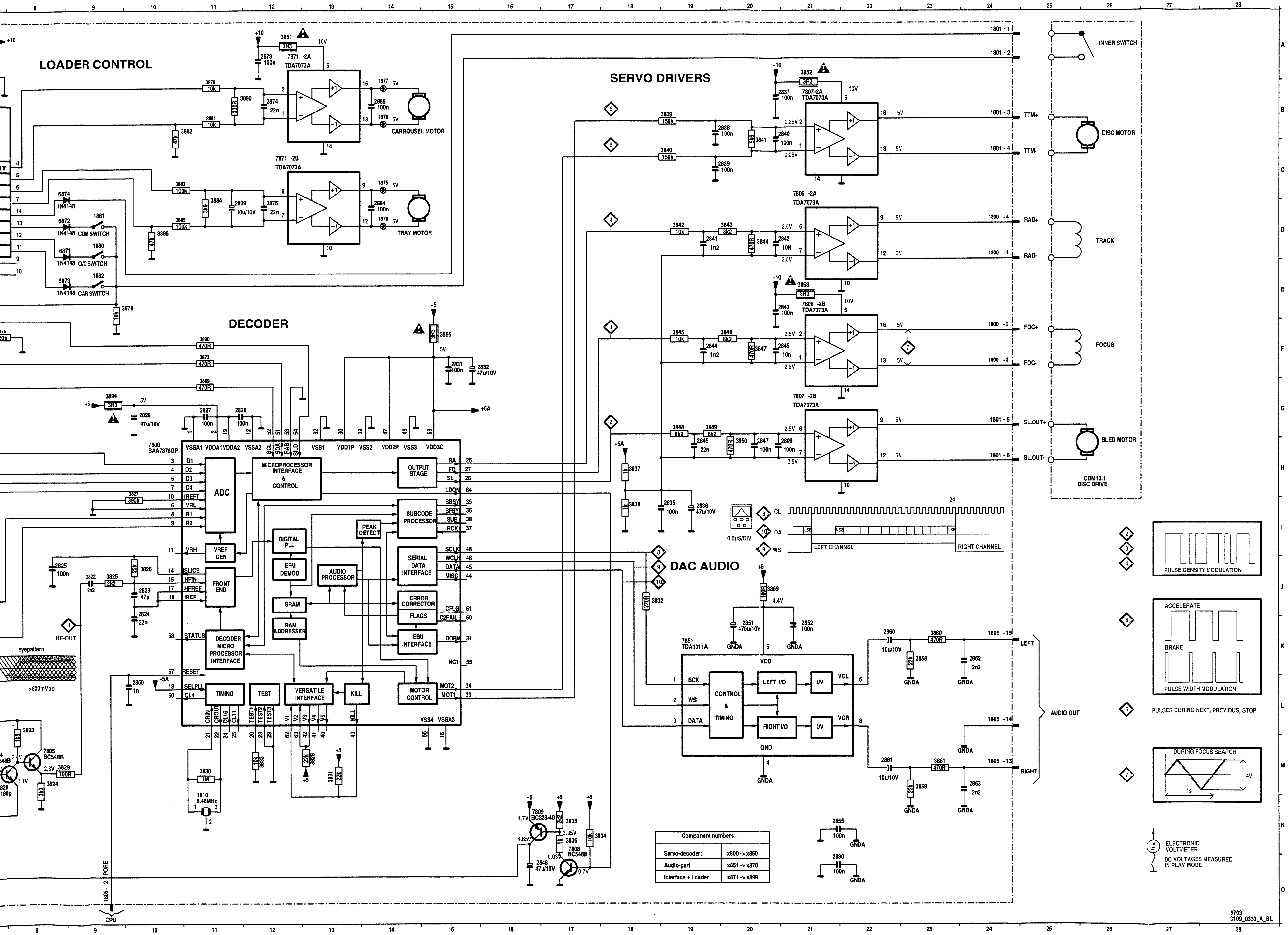

OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUT
SW-INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
1806 15
1806 14
1806 13
1806 12
1806 11
1806 10
1806 9
1806 8
1806 7
1806 6
1806 5
1806 4
1806 3
1806 2
1806 1
1874 1
1874 6
1874 3
1874 4
1874 5
1874 2
1874 7
1874 8
1874 9
OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUTP
SW-INFO
1873 1
1873 2
1873 3
1873 4
1873 5
1873 6
+10V
GND
+5V
RIGHT
GNDA
LEFT
2881
100n
2880
100n
OPTIONAL
GND_SCREW_2
0330_B

1806	D 1
1806	D 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	A 1
1806	A 1
1806	A 1
1873	D 8
1873	D 8
1873	D 8
1873	E 8
1873	E 8
1873	E 8
1874	A 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	C 8
2880	F 8
2881	D 5


OE
SI CL
GND
SI LD
DATA
PORE
SHR-CL
STR
SW-I
1874
9829
1806
+10V
GND
+5V
RIGHT
GNDA
LEFT
1873
2881
2880

CDC-3 CIRCUIT

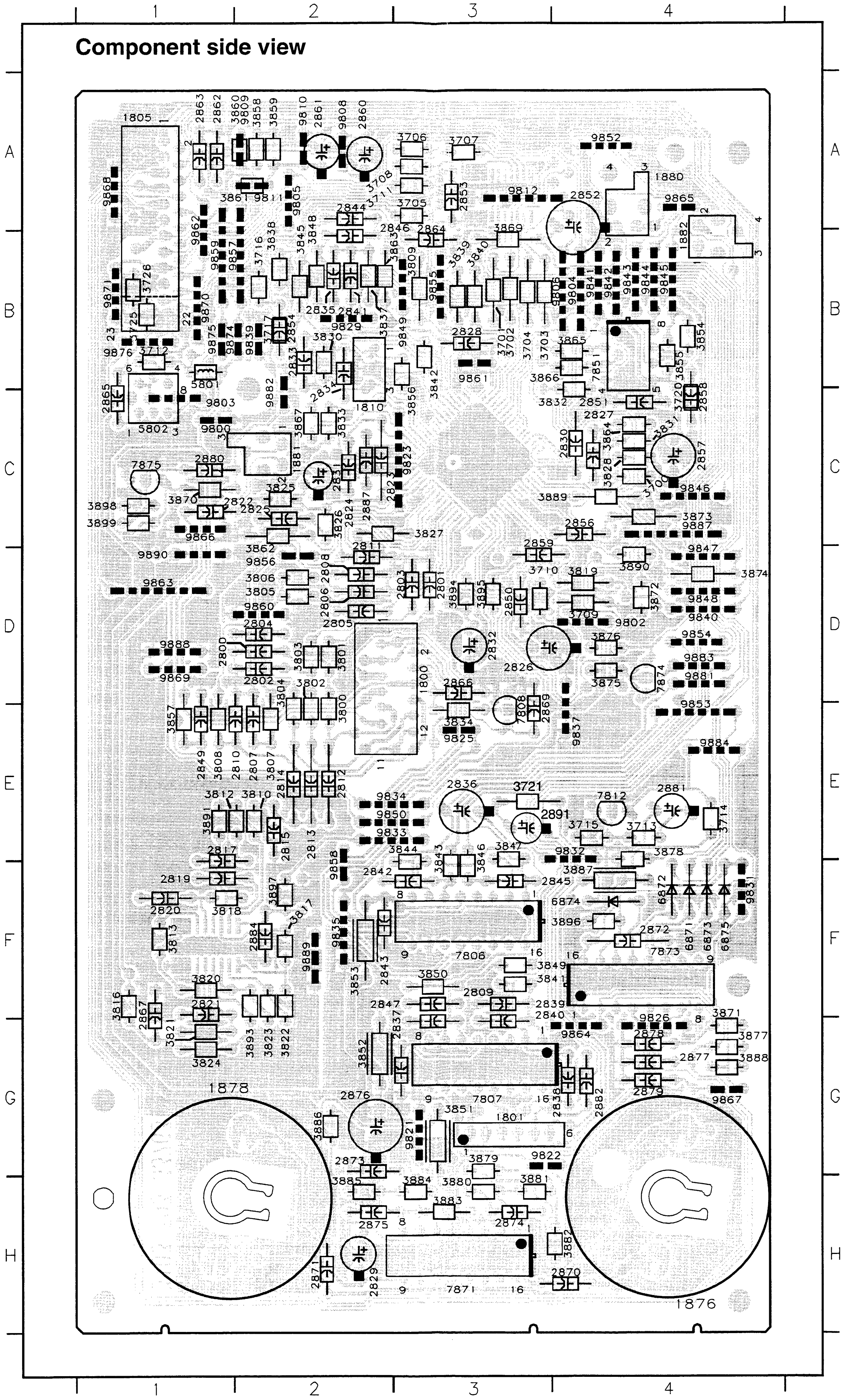

LOADER CONTROL
SERVO DRIVERS
DECODER
DAC AUDIO
HF AMPLIFIER
POWER SUPPLY
CPU
+10V
+5V
GND
OE_LATCH
STR_OUTP
SHR_CL
SWITCH_INFO
SILD
DATA
SICL
CDM12.1 DISC DRIVE
D2
D3
D4
D5
D1
+5C
LDON
ALPC
7872 HEF4094BT
EN3
VCC
C2
SRG8
C1/ →
1D
2D 3▽
7871 -2A TDA7073A
7871 -2B TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
1881 CDM SWITCH
1880 O/C SWITCH
1882 CAR SWITCH
6874 1N4148
6872 1N4148
6871 1N4148
6873 1N4148
6875 BZX79C5V1
7874 BC548B
7800 SAA7378GP
VSSA1
VDDA1
VDDA2
VSSA2
SCL
SDA
RAB
SILD
VSS1
VDD1P
VSS2
VDD2P
VSS3
VDD3C
ADC
MICROPROCESSOR INTERFACE & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
PEAK DETECT
DIGITAL PLL
EFM DEMOD
AUDIO PROCESSOR
SERIAL DATA INTERFACE
VREF GEN
FRONT END
SRAM
RAM ADDRESSER
ERROR CORRECTOR
FLAGS
EBU INTERFACE
DECODER MICRO PROCESSOR INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
RA
FO
SL
LDON
SBSY
SFSY
SUB
RCK
SCLK
WCLK
DATA
MISC
CFLG
C2FAIL
DOBM
NC1
MOT2
MOT1
VSS4
VSSA3
IREFT
VRL
R1
R2
VRH
ISLICE
HFIN
HFREF
IREF
STATUS
RESET
SELPLL
CL4
CRIN
CROUT
CL16
CL11
TEST1
TEST2
TEST3
V1
V2
V3
V4
V5
1810 8.46MHz
HF-OUT
eyepattern
2.5V
>800mVpp
0,5us/DIV
0.5uS/DIV
7801 BF240
7802 BC548B
7803 BC558B
7804 BC548B
7805 BC548B
7809 BC328-40
7808 BC548B
7851 TDA1311A
GNDA
BCK
WS
DATA
CONTROL & TIMING
1805 - 2 PORE
CPU
3109_0330_A_RED
Component numbers:
Servo-decoder: x800 -> x850
Audio-part x851 -> x870
Interface + Loader x871 -> x899


LOADER CONTROL
SERVO DRIVERS
DECODER
DAC AUDIO
7871 -2A TDA7073A
7871 -2B TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
CDM SWITCH
O/C SWITCH
CAR SWITCH
1N4148
7807-2A TDA7073A
7806 -2A TDA7073A
7806 -2B TDA7073A
7807 -2B TDA7073A
TTM+
TTM-
RAD+
RAD-
FOC+
FOC-
SL.OUT+
SL.OUT-
INNER SWITCH
DISC MOTOR
TRACK
FOCUS
SLED MOTOR
CDM12.1 DISC DRIVE
7800 SAA7378GP
VSSA1 VDDA1 VDDA2 VSSA2 SCL SDA RAB SILD VSS1 VDD1P VSS2 VDD2P VSS3 VDD3C
ADC
MICROPROCESSOR INTERFACE & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
PEAK DETECT
DIGITAL PLL
EFM DEMOD
AUDIO PROCESSOR
SERIAL DATA INTERFACE
ERROR CORRECTOR
FLAGS
SRAM
RAM ADDRESSER
EBU INTERFACE
VREF GEN
FRONT END
DECODER MICRO PROCESSOR INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
D1 D2 D3 D4 IREFT VRL R1 R2 VRH ISLICE HFIN HFREF IREF STATUS RESET SELPLL CL4
RA FO SL LDON SBSY SFSY SUB RCK SCLK WCLK DATA MISC CFLG C2FAIL DOBM NC1 MOT2 MOT1
VSS4 VSSA3
HF-OUT
eyepattern
>800mVpp
1810 8.46MHz
7805 BC548B
7809 BC328-40
7808 BC548B
7851 TDA1311A
VDD
BCK
WS
DATA
CONTROL & TIMING
LEFT I/O
RIGHT I/O
I/V
VOL
VOR
GND
GNDA
LEFT
RIGHT
AUDIO OUT
CL
DA
WS
0.5uS/DIV
LEFT CHANNEL
RIGHT CHANNEL
LSB
MSB
PULSE DENSITY MODULATION
ACCELERATE
BRAKE
PULSE WIDTH MODULATION
PULSES DURING NEXT, PREVIOUS, STOP
DURING FOCUS SEARCH
4V
1s
ELECTRONIC VOLTMETER
DC VOLTAGES MEASURED IN PLAY MODE
CPU
1805-2 PORE
9703
3109_0330_A_BL

Component numbers:	
Servo-decoder:	x800 -> x850
Audio-part	x851 -> x870
Interface + Loader	x871 -> x899

1800	D24
1800	F24
1800	F24
1800	D24
1800	N 3
1800	O 3
1800	L 3
1800	K 3
1800	H 3
1800	H 3
1800	J 3
1800	I 3
1801	A24
1801	A24
1801	B24
1801	C24
1801	G24
1801	H24
1805	B 3
1805	O 9
1805	D 3
1805	E 3
1805	F 3
1805	G 3
1805	C 3
1805	C 3
1805	E 3
1805	A 3
1805	B 3
1805	A 3
1805	M24
1805	L24
1805	K24
1810	N11
1880	D 9
1881	D 9
1882	E 9
2800	H 5
2801	H 6
2802	I 5
2803	I 6
2804	I 5
2805	I 6
2806	J 6
2807	J 5
2808	J 6
2809	H21
2810	K 5
2811	K 6
2812	K 3
2813	K 4
2814	K 4
2815	L 4
2816	L 4
2817	N 5
2818	O 5
2819	M 7
2820	M 7
2821	M 6
2822	J 9
2823	J10
2824	J10
2825	J 8
2826	G10
2827	G11
2828	G11
2829	D11
2830	O21
2831	F15
2832	F16
2835	I19
2836	I19
2837	B20
2838	B19
2839	C19
2840	B20
2841	D19
2842	D20
2843	E20
2844	F19
2845	F20
2846	H19
2847	H20
2848	O16
2850	L10
2851	K20
2852	K21
2855	N21
2860	K22
2861	M22
2862	K24
2863	M24
2864	D14
2865	B14
2867	C 6
2868	C 6
2869	C 5
2872	A 7
2873	A12
2874	B12
2875	D12
2876	A 5
3800	H 5
3801	H 6
3802	H 5
3803	H 6
3804	I 5
3805	I 6
3806	J 6
3807	J 6
3808	K 6
3810	M 4
3811	N 5
3812	N 5
3813	N 5
3814	L 5
3815	L 5
3816	L 6
3817	M 6
3818	N 6
3819	O 6
3820	M 6
3821	N 7
3822	M 7
3823	L 8
3824	M 8
3825	J 9
3826	J10
3827	H10
3828	M13
3829	M 8
3830	M11
3831	M13
3832	J18
3833	M12
3834	N18
3835	N17
3836	N17
3837	H18
3838	I18
3839	B19
3840	C19
3841	C20
3842	D19
3843	D20
3844	D20
3845	F19
3846	F20
3847	F20
3848	G19
3849	G19
3850	H20
3851	A12
3852	A21
3853	E21
3858	K23
3859	M23
3860	K23
3861	M23
3869	J20
3870	A 3
3871	C 4
3872	E 4
3873	F11
3874	E 5
3875	F 6
3876	F 7
3877	E 4
3878	E 9
3879	B11
3880	B11
3881	B11
3882	B10
3883	C10
3884	D11
3885	D10
3886	D10
3887	A 5
3888	C 4
3889	G11
3890	F11
3891	N 4
3892	M 6
3893	M 7
3894	G 9
3895	F15
3896	B 4
3897	L 5
6871	D 9
6872	D 9
6873	E 9
6874	C 9
6875	B 6
7800	H10
7801	M 4
7802	M 5
7803	M 6
7804	M 7
7805	M 8
7806	E21
7806	C21
7807	B21
7807	G21
7808	N17
7809	N17
7851	K19
7871	A12
7871	C12
7872	B 6
7874	F 6

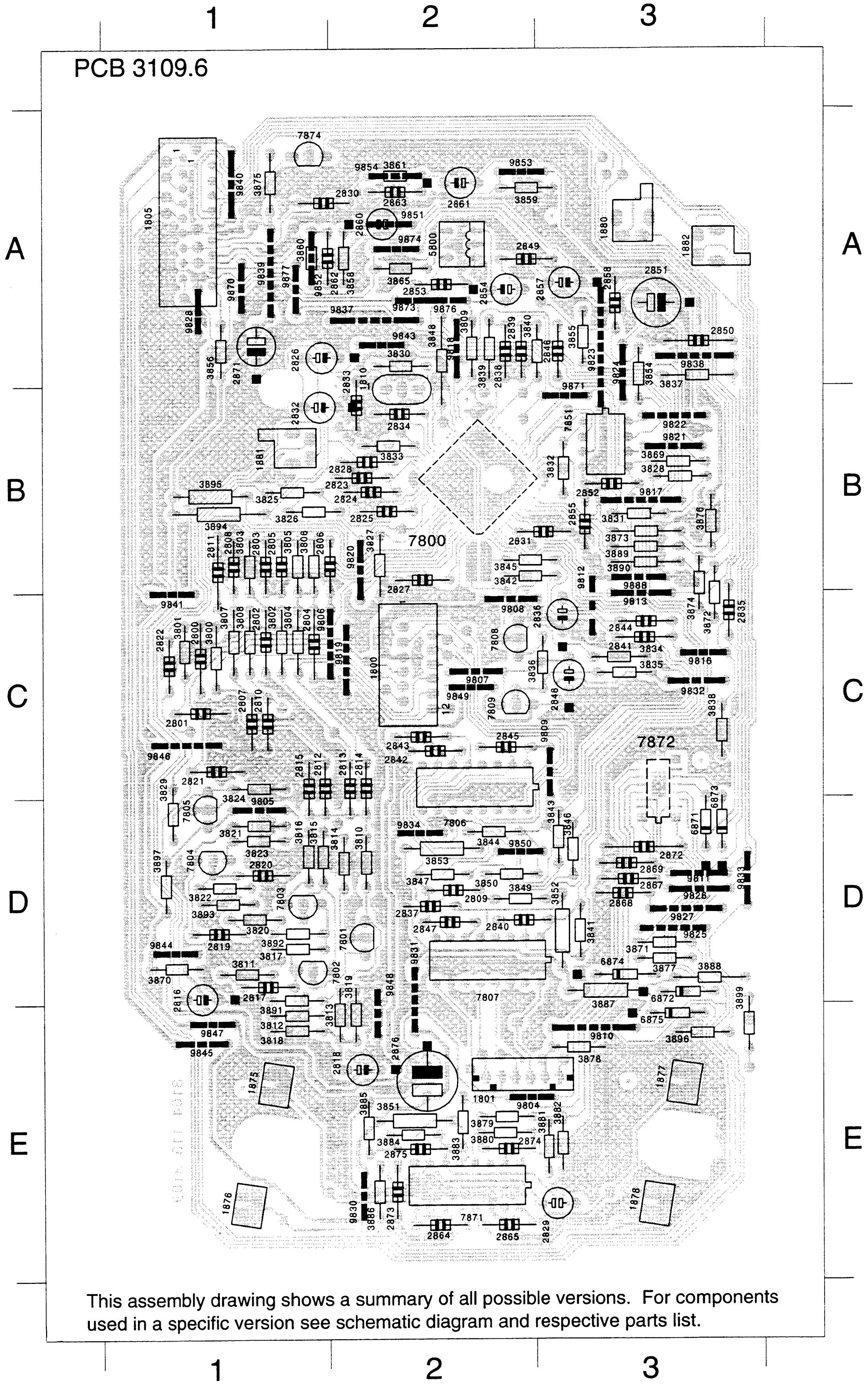
1800	E3	2869	E2	3842	B3	9802	D2
1801	H2	2870	I2	3843	F3	9803	C5
1805	B5	2871	I4	3844	F3	9804	B2
1810	C3	2872	G2	3845	B4	9805	A4
1876	I1	2873	H3	3846	F3	9806	B2
1878	I4	2874	I2	3847	F2	9808	A4
1880	B2	2875	I3	3848	B4	9809	A4
1881	C4	2876	H3	3849	G2	9810	A4
1882	B1	2877	G1	3850	G3	9811	A4
2800	D4	2878	G1	3851	H3	9812	A2
2801	D3	2879	H1	3852	G3	9821	H3
2802	E4	2880	C5	3853	G3	9822	H2
2803	D3	2881	F1	3854	B1	9823	C3
2804	D4	2882	H2	3855	B1	9825	E3
2805	D3	2884	G4	3856	C3	9826	G1
2806	D3	2887	C3	3857	E5	9829	B4
2807	E4	3700	C1	3858	A4	9831	F1
2808	D3	3701	B3	3859	A4	9832	F2
2809	G3	3702	B2	3860	A4	9833	F3
2810	E4	3703	B2	3861	A4	9834	F3
2811	D3	3704	B2	3862	D4	9835	G4
2812	F4	3705	A3	3863	B3	9837	E2
2813	F4	3706	A3	3864	C1	9839	B4
2814	F4	3707	A3	3865	B2	9840	D1
2815	F4	3708	A3	3866	C2	9841	B2
2817	F4	3709	D2	3867	C4	9842	B2
2819	F4	3710	D2	3869	B2	9843	B2
2820	F5	3711	A3	3870	C5	9844	B1
2821	G5	3712	B5	3871	G1	9845	B1
2822	D5	3713	F1	3872	D1	9846	C1
2823	C3	3714	F1	3873	D1	9847	D1
2824	C4	3715	F2	3874	D1	9848	D1
2825	D4	3716	B4	3875	E2	9849	B3
2826	D2	3717	B4	3876	E2	9850	F3
2827	C2	3720	C1	3877	G1	9852	A2
2828	B3	3725	B5	3878	F2	9853	E1
2829	I3	3726	B5	3879	H3	9854	D1
2830	C2	3800	E4	3880	H3	9855	B3
2831	C4	3801	E4	3881	H2	9856	D4
2832	E3	3802	E4	3882	I2	9857	B4
2833	B4	3803	E4	3883	I3	9858	F4
2834	C3	3804	E4	3884	H3	9859	B4
2835	B4	3805	D4	3885	H3	9860	D4
2836	F3	3806	D4	3886	H4	9861	B3
2837	H3	3807	E4	3887	F2	9862	B5
2838	H2	3808	E4	3888	H1	9863	D5
2839	G2	3809	B3	3889	C2	9864	G2
2840	G2	3810	F4	3890	D1	9865	A1
2841	B3	3812	F4	3891	F4	9866	D5
2842	F3	3813	G5	3893	G4	9867	H1
2843	G3	3816	G5	3894	D3	9868	A5
2844	B4	3817	G4	3895	D3	9869	E5
2845	F2	3818	F4	3896	G2	9870	B5
2846	B4	3819	D2	3897	F4	9871	B5
2847	G3	3820	G5	3898	D5	9874	B4
2849	E5	3821	G5	3899	D5	9875	B4
2850	D2	3822	G4	5801	B5	9876	B5
2851	C1	3823	G4	5802	C5	9881	E1
2852	A2	3824	G5	6871	F1	9882	C4
2853	A3	3825	C4	6872	F1	9883	E1
2854	B4	3826	D4	6873	F1	9884	E1
2856	D2	3827	D3	6874	F2	9887	D1
2857	C1	3828	C1	6875	F1	9888	E5
2858	C1	3830	B4	7806	G3	9889	G4
2859	D2	3831	C1	7807	H3	9890	D5
2860	A3	3832	C2	7808	E2		
2861	A4	3833	C4	7812	F2		
2862	A4	3834	E3	7851	B2		
2863	A5	3837	B3	7871	I3		
2864	B3	3838	B4	7873	G1		
2865	C5	3839	B3	7874	E1		
2866	E3	3840	B3	7875	C5		
2867	G5	3841	G2	9800	C4		



Component side view

1800	D3	2869	E3	3842	B3	9802	D4
1801	G3	2870	H4	3843	F3	9803	C1
1805	A1	2871	H2	3844	F3	9804	B4
1810	B2	2872	F4	3845	B2	9805	A2
1876	H4	2873	G2	3846	F3	9806	B4
1878	H1	2874	H3	3847	E3	9808	A2
1880	B4	2875	H2	3848	B2	9809	A2
1881	C2	2876	G3	3849	F3	9810	A2
1882	B4	2877	G4	3850	F3	9811	A2
2800	D2	2878	G4	3851	G3	9812	A3
2801	D3	2879	G4	3852	G2	9821	G3
2802	D2	2880	C1	3853	F2	9822	G3
2803	D3	2881	E4	3854	B4	9823	C3
2804	D2	2882	G4	3855	B4	9825	E3
2805	D2	2884	F2	3856	B3	9826	G4
2806	D2	2887	C2	3857	E1	9829	B2
2807	E2	3700	C4	3858	A2	9831	F4
2808	D2	3701	B3	3859	A2	9832	E4
2809	F3	3702	B3	3860	A2	9833	E2
2810	E2	3703	B3	3861	A2	9834	E2
2811	D2	3704	B3	3862	C2	9835	F2
2812	E2	3705	A3	3863	B2	9837	E4
2813	E2	3706	A3	3864	C4	9839	B2
2814	E2	3707	A3	3865	B4	9840	D4
2815	E2	3708	A3	3866	B4	9841	B4
2817	F1	3709	D4	3867	C2	9842	B4
2819	F1	3710	D3	3869	B3	9843	B4
2820	F1	3711	A3	3870	C1	9844	B4
2821	G1	3712	B1	3871	G4	9845	B4
2822	C1	3713	E4	3872	D4	9846	C4
2823	C2	3714	E4	3873	C4	9847	D4
2824	C2	3715	E4	3874	D4	9848	D4
2825	C2	3716	B2	3875	D4	9849	B3
2826	D3	3717	B2	3876	D4	9850	E2
2827	C4	3720	C4	3877	G4	9852	A4
2828	B3	3725	B1	3878	E4	9853	E4
2829	H2	3726	B1	3879	G3	9854	D4
2830	C4	3800	E2	3880	H3	9855	B3
2831	C2	3801	D2	3881	H3	9856	D2
2832	D3	3802	E2	3882	H4	9857	B2
2833	B2	3803	D2	3883	H3	9858	F2
2834	B2	3804	E2	3884	H3	9859	B1
2835	B2	3805	D2	3885	H2	9860	D2
2836	E3	3806	D2	3886	G2	9861	B3
2837	G2	3807	E2	3887	F4	9862	A1
2838	G4	3808	E1	3888	G4	9863	D1
2839	F3	3809	B3	3889	C4	9864	G4
2840	F3	3810	E2	3890	D4	9865	A4
2841	B2	3812	E2	3891	E1	9866	C1
2842	F3	3813	F1	3893	F2	9867	G4
2843	F2	3816	F1	3894	D3	9868	A1
2844	B2	3817	F2	3895	D3	9869	D1
2845	F3	3818	F1	3896	F4	9870	B1
2846	B2	3819	D4	3897	F2	9871	B1
2847	F3	3820	F1	3898	C1	9874	B2
2849	E1	3821	G1	3899	C1	9875	B1
2850	D3	3822	F2	5801	B1	9876	B1
2851	C4	3823	F2	5802	C1	9881	D4
2852	A4	3824	G1	6871	F4	9882	C2
2853	A3	3825	C2	6872	F4	9883	D4
2854	B2	3826	C2	6873	F4	9884	E4
2856	C4	3827	C2	6874	F4	9887	C4
2857	C4	3828	C4	6875	F4	9888	D1
2858	C4	3830	B2	7806	F3	9889	F2
2859	C3	3831	C4	7807	G3	9890	D1
2860	A2	3832	C4	7808	E3		
2861	A2	3833	C2	7812	E4		
2862	A1	3834	E3	7851	B4		
2863	A1	3837	B2	7871	H3		
2864	B3	3838	B2	7873	F4		
2865	C1	3839	B3	7874	D4		
2866	E3	3840	B3	7875	C1		
2867	F1	3841	F3	9800	C1		

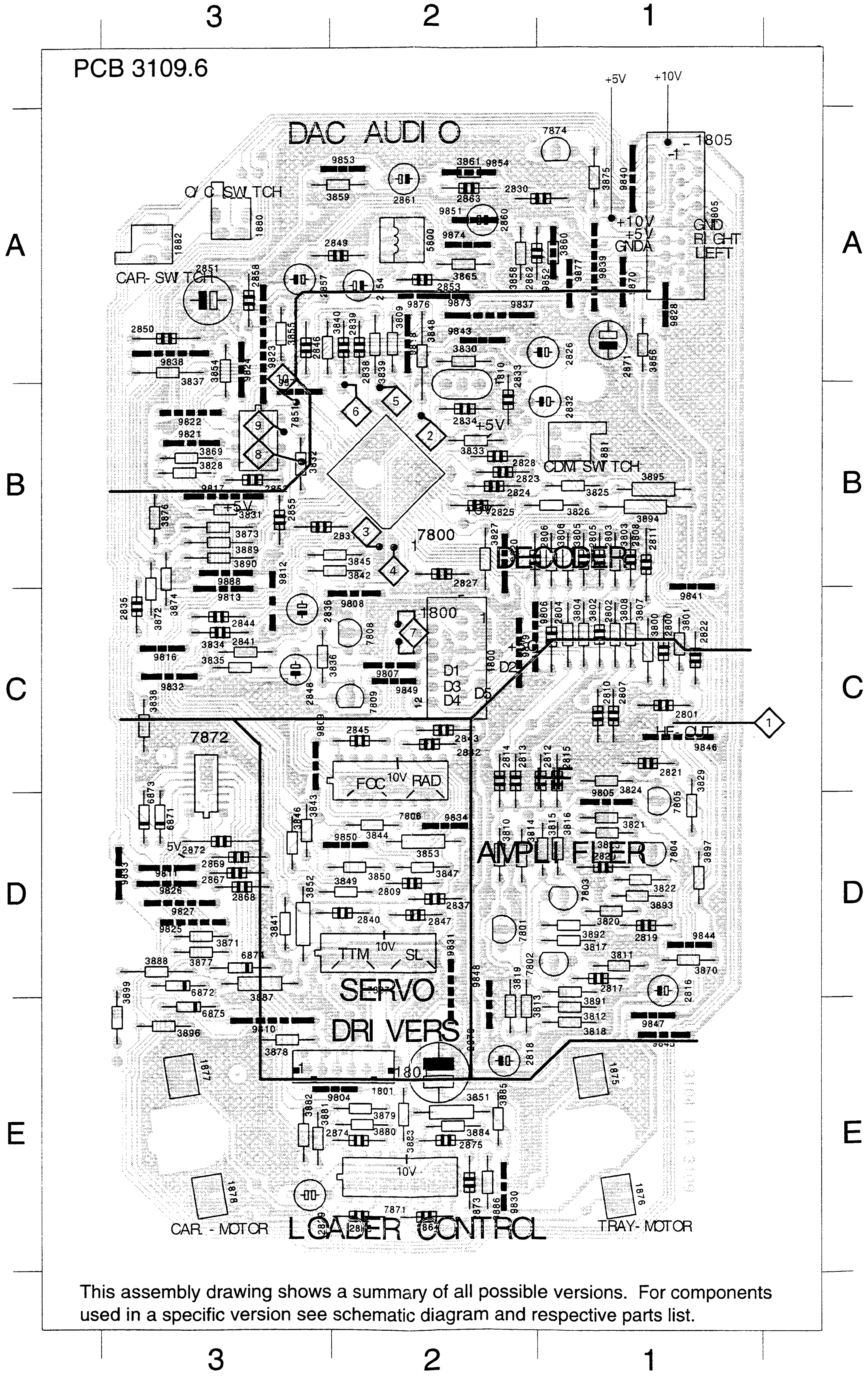
CDC-3 COMPONENT LAYOUT


PCB 3109.6
1
2
3
A
B
C
D
E
7800
7872
7874
7871
7851
1800
1801
1805
1880
1881
1882
1875
1876
1877
1878

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1800	C 2	3807	C 1	7801	D 2
1801	E 2	3808	C 1	7802	D 1
1805	A 1	3809	A 2	7803	D 1
1810	B 2	3810	D 2	7804	D 1
1875	E 1	3811	D 1	7805	D 1
1876	E 1	3812	E 1	7806	C 2
1877	E 3	3813	E 2	7807	D 2
1878	E 3	3814	D 2	7808	C 2
1880	A 3	3815	D 1	7809	C 2
1881	B 1	3816	D 1	7851	B 3
1882	A 3	3817	D 1	7871	E 2
2800	C 1	3818	E 1	7874	A 1
2801	C 1	3819	E 2	9804	E 2
2802	C 1	3820	D 1	9805	D 1
2803	B 1	3821	D 1	9806	C 2
2804	C 1	3822	D 1	9807	C 2
2805	B 1	3823	D 1	9808	C 2
2806	B 2	3824	C 1	9809	C 3
2807	C 1	3825	B 1	9810	E 3
2808	B 1	3826	B 1	9811	D 3
2809	D 2	3827	B 2	9812	C 3
2810	C 1	3828	B 3	9813	C 3
2811	B 1	3829	D 1	9816	C 3
2812	C 1	3830	A 2	9817	B 3
2813	C 2	3831	B 3	9818	A 2
2814	C 2	3832	B 3	9819	C 2
2815	C 1	3833	B 2	9820	B 2
2816	D 1	3834	C 3	9821	B 3
2817	D 1	3835	C 3	9822	B 3
2818	E 2	3836	C 3	9823	A 3
2819	D 1	3837	A 3	9824	A 3
2820	D 1	3838	C 3	9825	D 3
2821	C 1	3839	A 2	9826	D 3
2822	C 1	3840	A 3	9827	D 3
2823	B 2	3841	D 3	9828	A 1
2824	B 2	3842	B 2	9830	E 2
2825	B 2	3843	D 3	9831	D 2
2826	A 1	3844	D 2	9832	C 3
2827	B 2	3845	B 2	9833	D 3
2828	B 2	3846	D 3	9834	D 2
2829	E 3	3847	D 2	9837	A 2
2830	A 1	3848	A 2	9838	A 3
2831	B 3	3849	D 2	9839	A 1
2832	B 1	3850	D 2	9840	A 1
2833	B 2	3851	E 2	9841	C 1
2834	B 2	3852	D 3	9843	A 2
2835	C 3	3853	D 2	9844	D 1
2836	C 3	3854	A 3	9845	E 1
2837	D 2	3855	A 3	9846	C 1
2838	A 2	3856	A 1	9847	E 1
2839	A 2	3858	A 2	9848	E 2
2840	D 2	3859	A 2	9849	C 2
2841	C 3	3860	A 1	9850	D 2
2842	C 2	3861	A 2	9851	A 2
2843	C 2	3865	A 2	9852	A 1
2844	C 3	3869	B 3	9853	A 2
2845	C 2	3870	D 1	9854	A 2
2846	A 3	3871	D 3	9870	A 1
2847	D 2	3872	C 3	9871	B 3
2848	C 3	3873	B 3	9873	A 2
2849	A 2	3874	B 3	9874	A 2
2850	A 3	3875	A 1	9876	A 2
2851	A 3	3876	B 3	9877	A 1
2852	B 3	3877	D 3	9888	B 3
2853	A 2	3878	E 3		
2854	A 2	3879	E 2		
2855	B 3	3880	E 2		
2857	A 3	3881	E 3		
2858	A 3	3882	E 3		
2860	A 2	3883	E 2		
2861	A 2	3884	E 2		
2862	A 1	3885	E 2		
2863	A 2	3886	E 2		
2864	E 2	3887	D 3		
2865	E 2	3888	D 3		
2867	D 3	3889	B 3		
2868	D 3	3890	B 3		
2869	D 3	3891	D 1		
2871	A 1	3892	D 1		
2872	D 3	3893	D 1		
2873	E 2	3894	B 1		
2874	E 2	3895	B 1		
2875	E 2	3896	E 3		
2876	E 2	3897	D 1		
3800	C 1	3899	E 3		
3801	C 1	5800	A 2		
3802	C 1	6871	D 3		
3803	B 1	6872	D 3		
3804	C 1	6873	D 3		
3805	B 1	6874	D 3		
3806	B 1	6875	E 3		

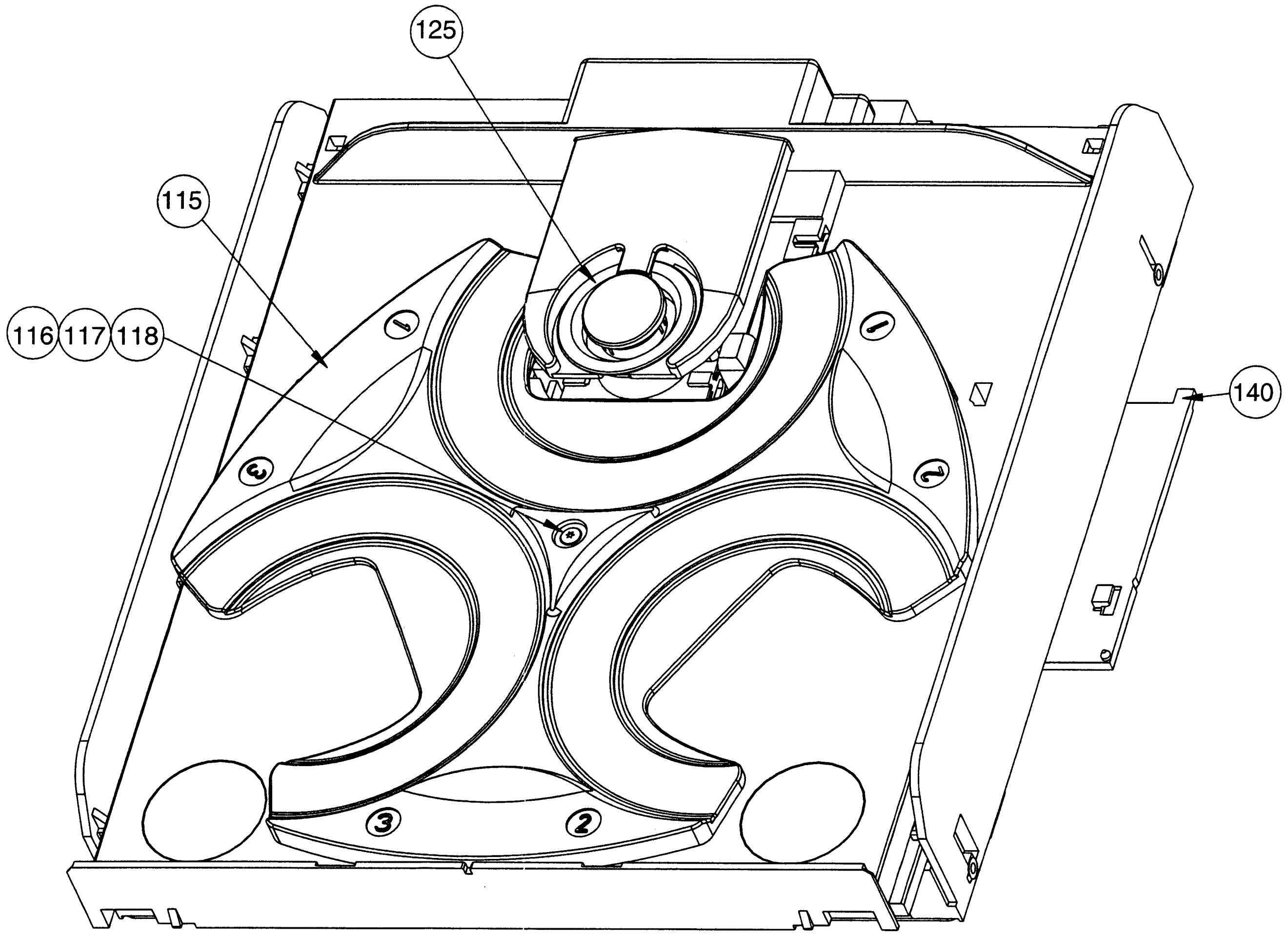
CDC-3 CHIP LAYOUT

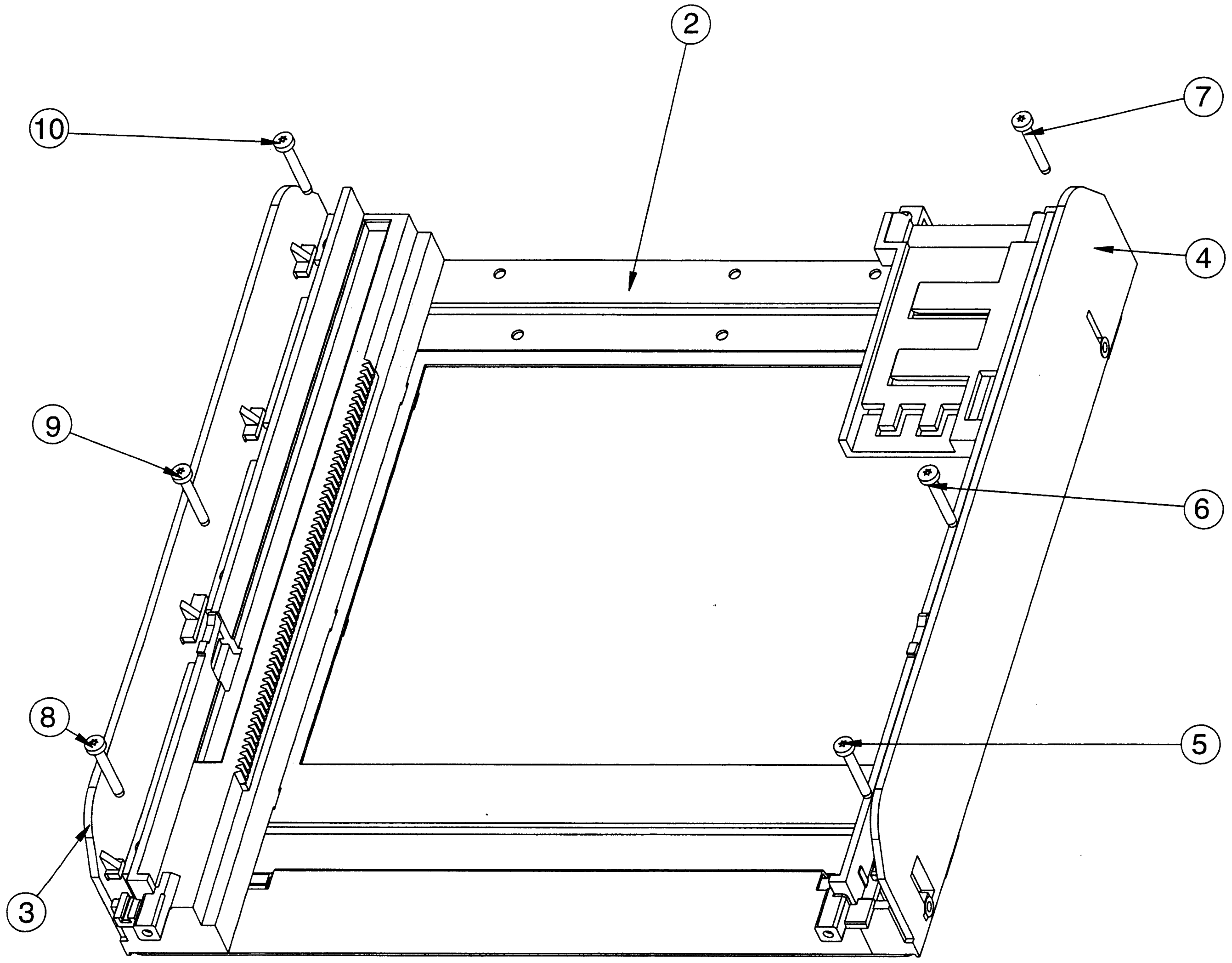

PCB 3109.6
3
2
1
A
B
C
D
E
+5V
+10V
DAC AUDIO
C/C SWITCH
CAR-SWITCH
CDM SWITCH
+10V
+5V
GNDA
GND
RIGHT
LEFT
1805
7800
DECODER
1800
D1
D2
D3
D4
D5
HF-OUT
7872
FOC
10V
RAD
AMPLIFIER
TTM
SL
SERVO
DRIVERS
1801
LOADER CONTROL
CAR.-MOTOR
TRAY-MOTOR

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

7800	B 2
7872	C 3

CDC EXPLODED VIEW I

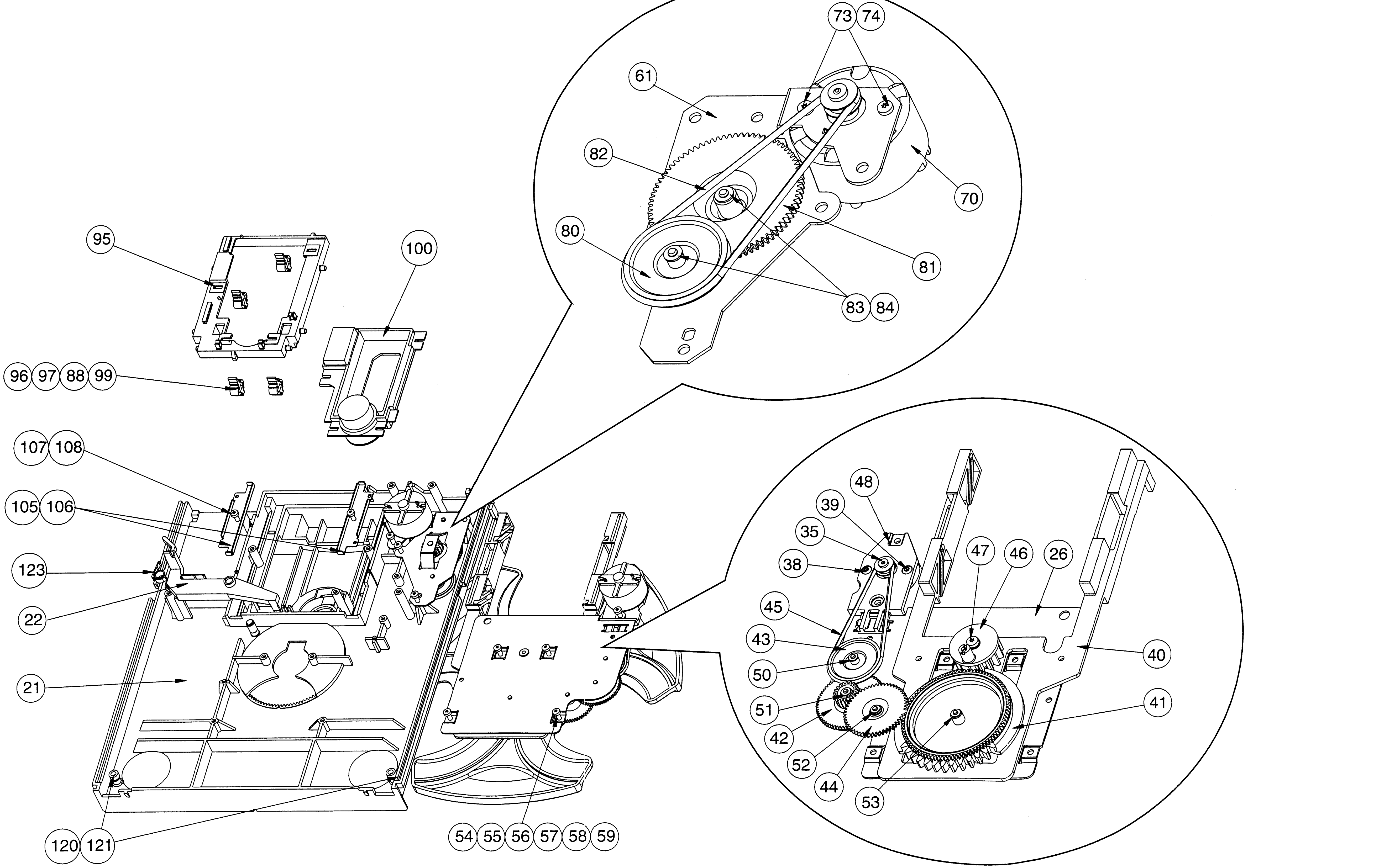




3	4822 463 11008	Guide Left
4	4822 463 11009	Guide Right
21	4822 441 11615	Drawer
22	4822 402 10088	Tumbler
35	4822 361 10753	Carrousel Motor
38	4822 502 12548	Screw M2,6 X 3,5
39	4822 502 12548	Screw M2,6 X 3,5
40	4822 463 11011	Slide
41	4822 522 10509	Control Disc
42	4822 522 10492	Gear Wheel
43	4822 528 10937	Pulley
44	4822 522 10493	Idler Wheel
45	4822 358 10115	Belt
46	4822 466 10735	Eccentric Gear Wheel
50	4822 532 12364	Washer
51	4822 532 12364	Washer
52	4822 532 12364	Washer
53	4822 532 12364	Washer
70	4822 361 10753	Tray Motor
73	4822 502 12548	Screw M 2,6 X 3,5
74	4822 502 12548	Screw M 2,6 X 3,5
80	4822 528 10937	Pulley
81	4822 522 10494	Gear Wheel
82	4822 358 10115	Belt
83	4822 532 12364	Washer
84	4822 532 12364	Washer
95	4822 404 10894	CDM Support
96	4822 325 50215	Suspension
97	4822 325 50215	Suspension
98	4822 325 50215	Suspension
99	4822 325 50215	Suspension
100	4822 691 30278	CDM-12.1 Mechanism
115	4822 466 10736	Carrousel
117	4822 532 12365	Bush
120	4822 532 51756	Damping Grommet
121	4822 532 51756	Damping Grommet
123	4822 402 10085	Switch Bracket
125	4822 532 52386	Clamper
140	4822 466 10734	Flex Cable Protection Plate
	4822 320 11183	Flexfoil 17P
	4822 390 10136	Lub. Grease Polylub GLY801

NOTE: Only the parts mentioned in this list are normal service spare parts.

CDC EXPLODED VIEW II


73
74
61
82
70
80
81
83
84
95
100
96
97
88
99
107
108
105
106
123
22
21
120
121
54
55
56
57
58
59
48
39
35
38
47
46
26
45
43
40
50
41
51
42
52
44
53

MISCELLANEOUS

1810	4822 242 73557	Ceram Resonator 8.46MHz
1880	4822 276 13503	Open/Close Switch
1881	4822 276 13503	CDM Position Switch
1882	4822 276 13503	Carrousel Switch
8002	4822 320 11313	Flexfoil 15 Pin

CAPACITORS

2800	4822 126 10053	180pF 10%
2801	4822 122 10466	220pF 10% 50V
2802	4822 126 10053	180pF 10%
2803	4822 122 10466	220pF 10% 50V
2804	4822 126 12787	330pF 10% 50V
2805	4822 122 10466	220pF 10% 50V
2806	4822 122 10466	220pF 10% 50V
2807	4822 126 12878	1,5nF 10% 16V
2808	4822 122 10466	220pF 10% 50V
2809	4822 126 12882	100nF +80 / -20% 50V
2810	4822 122 10459	560pF 10% 50V
2811	4822 122 10466	220pF 10% 50V
2812	4822 122 33848	47pF 5% 50V
2813	4822 122 33848	47pF 5% 50V
2814	4822 122 33195	100pF 10% 50V
2815	4822 126 12573	18pF 5% 50V
2816	4822 124 23624	47µF 20% 16V
2817	4822 126 10053	180pF 10%
2818	4822 124 23624	47µF 20% 16V
2819	4822 126 12787	330pF 10% 50V
2820	4822 126 10053	180pF 10%
2821	4822 126 11585	22nF +80 / -20% 25V
2822	4822 126 12339	2,2nF 10%
2823	4822 122 33848	47pF 5% 50V
2824	4822 126 11585	22nF +80 / -20% 25V
2825	4822 126 12882	100nF +80 / -20% 50V
2826	4822 124 23624	47µF 20% 16V
2827	4822 126 12882	100nF +80 / -20% 50V
2828	4822 126 12882	100nF +80 / -20% 50V
2829	4822 124 80865	10µF 20% 25V
2830	4822 126 12882	100nF +80 / -20% 50V
2831	4822 126 12882	100nF +80 / -20% 50V
2832	4822 124 23624	47µF 20% 16V
2835	4822 126 12882	100nF +80 / -20% 50V
2836	4822 124 23624	47µF 20% 16V
2837	4822 126 12882	100nF +80 / -20% 50V
2838	4822 126 12882	100nF +80 / -20% 50V
2839	4822 126 12882	100nF +80 / -20% 50V
2840	4822 126 12882	100nF +80 / -20% 50V
2841	4822 122 10574	1,2nF 10% 16V
2842	4822 121 51387	10nF 20% 16V
2843	4822 126 12882	100nF +80 / -20% 50V
2844	4822 122 10574	1,2nF 10% 16V
2845	4822 121 51387	10nF 20% 16V
2846	4822 126 11585	22nF +80 / -20% 25V
2847	4822 126 12882	100nF +80 / -20% 50V
2848	4822 124 23624	47µF 20% 16V
2850	4822 122 33197	1nF 10% 50V
2851	4822 124 41997	470µF 10V
2852	4822 126 12882	100nF +80 / -20% 50V
2855	4822 126 12882	100nF +80 / -20% 50V
2860	4822 124 41579	10µF 20% 50V
2861	4822 124 41579	10µF 20% 50V
2862	4822 126 12339	2,2nF 10%
2863	4822 126 12339	2,2nF 10%
2864	4822 126 12882	100nF +80 / -20% 50V
2865	4822 126 12882	100nF +80 / -20% 50V
2867	4822 122 10466	220pF 10% 50V
2868	4822 122 10466	220pF 10% 50V
2869	4822 122 10466	220pF 10% 50V
2872	4822 126 12882	100nF +80 / -20% 50V
2873	4822 126 12882	100nF +80 / -20% 50V
2874	4822 126 11585	22nF +80 / -20% 25V
2875	4822 126 11585	22nF +80 / -20% 25V
2876	4822 124 23794	470µF 20% 16V

RESISTORS

3800	4822 116 52239	120k 5% 0,5W
3801	4822 116 83864	10k 5% 0,5W
3802	4822 116 52239	120k 5% 0,5W
3803	4822 116 83864	10k 5% 0,5W
3804	4822 116 52291	56k 5% 0,5W
3805	4822 116 83864	10k 5% 0,5W
3806	4822 116 83864	10k 5% 0,5W
3807	4822 116 83864	10k 5% 0,5W
3808	4822 116 83864	10k 5% 0,5W
3810	4822 050 11002	1k 1% 0,4W
3811	4822 116 52244	15k 5% 0,5W
3812	4822 116 52272	330k 5% 0,5W
3813	4822 116 83884	47k 5% 0,5W
3814	4822 116 83882	39k 5% 0,5W
3815	4822 050 11002	1k 1% 0,4W
3816	4822 116 52175	100R 5% 0,5W
3817	4822 050 11002	1k 1% 0,4W
3818	4822 116 52175	100R 5% 0,5W
3819	4822 116 52222	390R 5% 0,5W
3820	4822 116 52219	330R 5% 0,5W
3821	4822 116 52249	1k8 5% 0,5W
3822	4822 116 52219	330R 5% 0,5W
3823	4822 116 52249	1k8 5% 0,5W
3824	4822 116 52269	3k3 5% 0,5W
3825	4822 116 52256	2k2 5% 0,5W
3826	4822 116 52257	22k 5% 0,5W
3827	4822 116 52278	390k 5% 0,5W
3828	4822 116 52257	22k 5% 0,5W
3829	4822 116 52175	100R 5% 0,5W
3830	4822 116 52235	1M 5% 0,5W

3831	4822 116 52257		22k 5% 0,5W
3832	4822 116 83872		220R 5% 0,5W
3833	4822 116 83864		10k 5% 0,5W
3834	4822 116 83864		10k 5% 0,5W
3835	4822 116 52256		2k2 5% 0,5W
3836	4822 050 11002		1k 1% 0,4W
3837	4822 050 11002		1k 1% 0,4W
3838	4822 050 11002		1k 1% 0,4W
3839	4822 116 52245		150k 5% 0,5W
3840	4822 116 52245		150k 5% 0,5W
3841	4822 116 52289		5k6 5% 0,5W
3842	4822 116 83864		10k 5% 0,5W
3843	4822 116 52303		8k2 5% 0,5W
3844	4822 116 83883		470R 5% 0,5W
3845	4822 116 83864		10k 5% 0,5W
3846	4822 116 52303		8k2 5% 0,5W
3847	4822 116 83883		470R 5% 0,5W
3848	4822 116 52303		8k2 5% 0,5W
3849	4822 116 52303		8k2 5% 0,5W
3850	4822 116 83883		470R 5% 0,5W
3851	4822 052 10338	⚠	3R3 5% 0,33W
3852	4822 052 10338	⚠	3R3 5% 0,33W
3853	4822 052 10338	⚠	3R3 5% 0,33W
3858	4822 116 52257		22k 5% 0,5W
3859	4822 116 52257		22k 5% 0,5W
3860	4822 116 83883		470R 5% 0,5W
3861	4822 116 83883		470R 5% 0,5W
3869	4822 116 52175		100R 5% 0,5W
3870	4822 116 52226		560R 5% 0,5W
3871	4822 116 83864		10k 5% 0,5W
3872	4822 116 83864		10k 5% 0,5W
3873	4822 116 83883		470R 5% 0,5W
3874	4822 116 83864		10k 5% 0,5W
3875	4822 116 83864		10k 5% 0,5W
3876	4822 116 83874		220k 5% 0,5W
3877	4822 116 83864		10k 5% 0,5W
3878	4822 116 83864		10k 5% 0,5W
3879	4822 116 83864		10k 5% 0,5W
3880	4822 116 52219		330R 5% 0,5W
3881	4822 116 83864		10k 5% 0,5W
3882	4822 116 83884		47k 5% 0,5W
3883	4822 116 52234		100k 5% 0,5W
3884	4822 116 52276		3k9 5% 0,5W
3885	4822 116 52234		100k 5% 0,5W
3886	4822 116 83884		47k 5% 0,5W
3887	4822 052 10221	⚠	220R 5% 0,33W
3888	4822 116 83864		10k 5% 0,5W
3889	4822 116 83883		470R 5% 0,5W
3890	4822 116 83883		470R 5% 0,5W
3891	4822 116 52244		15k 5% 0,5W
3892	4822 116 52175		100R 5% 0,5W
3893	4822 116 52175		100R 5% 0,5W
3894	4822 052 10338	⚠	3R3 5% 0,33W
3895	4822 052 10338	⚠	3R3 5% 0,33W
3896	4822 116 83864		10k 5% 0,5W
3897	4822 116 52175		100R 5% 0,5W

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-C5V1

TRANSISTORS & INTEGRATED CIRCUITS

7800	4822 209 12752	SAA7378GP/M1
7801	4822 130 40902	BF240
7802	4822 130 40937	BC548B
7803	4822 130 44197	BC558B
7804	4822 130 40937	BC548B
7805	4822 130 40937	BC548B
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7808	4822 130 40937	BC548B
7809	4822 130 41715	BC328-40
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7872	5322 209 11306	HEF4094BT
7874	4822 130 40937	BC548B

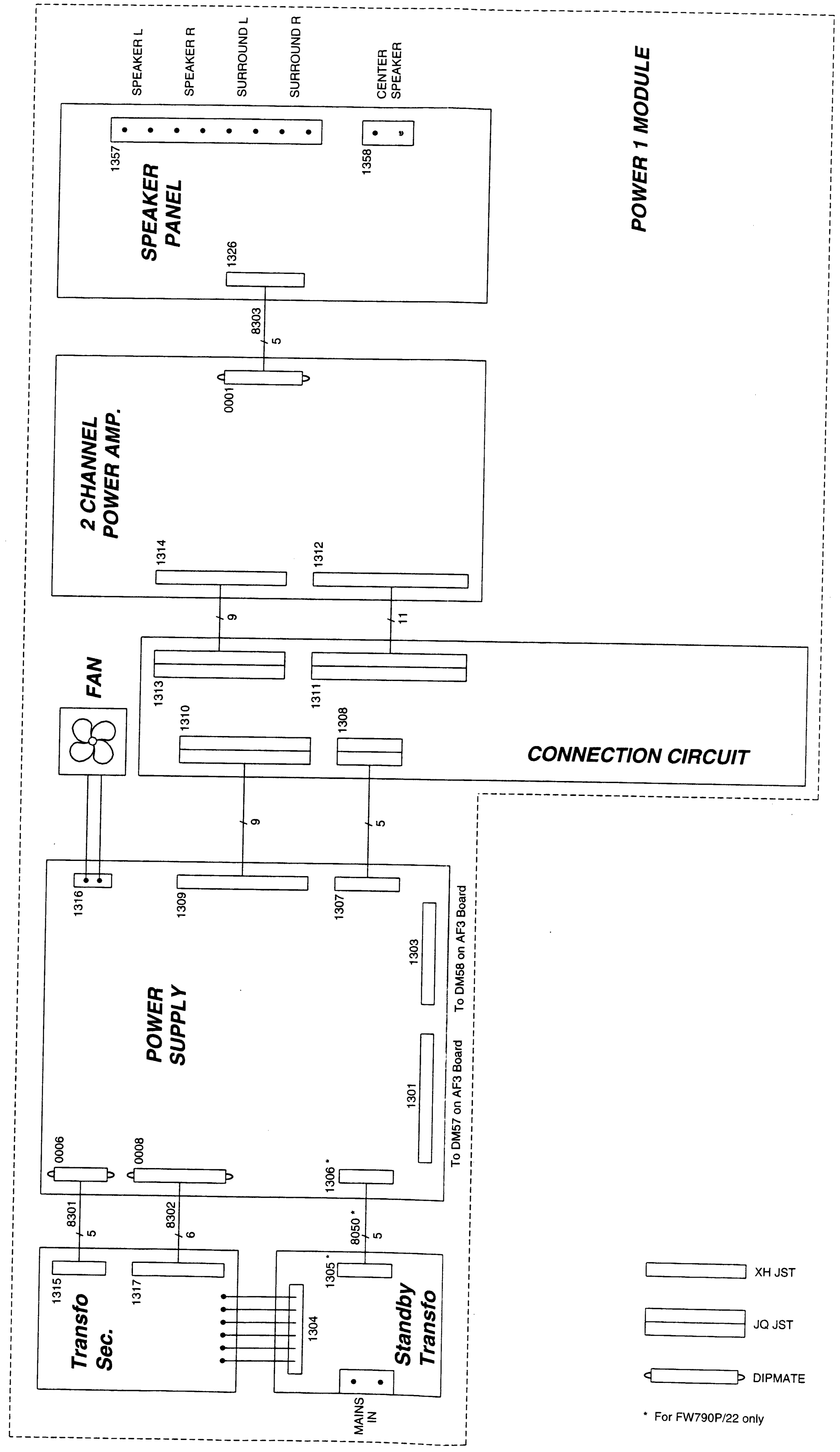
NOTE: Only the parts mentioned in this list are normal service spare parts.

POWER 1 MODULE

TABLE OF CONTENTS

Power 1 Module wiring diagram 11-1
Power Board layout 11-2
Power circuit *(2 x 100W version)* 11-3
Power circuit *(2 x 70W version)* 11-4
Power Board layout (repeat) 11-5
Electrical parts list *(2 x 100W version)* 11-6
Electrical parts list *(2 x 100W version)* 11-7

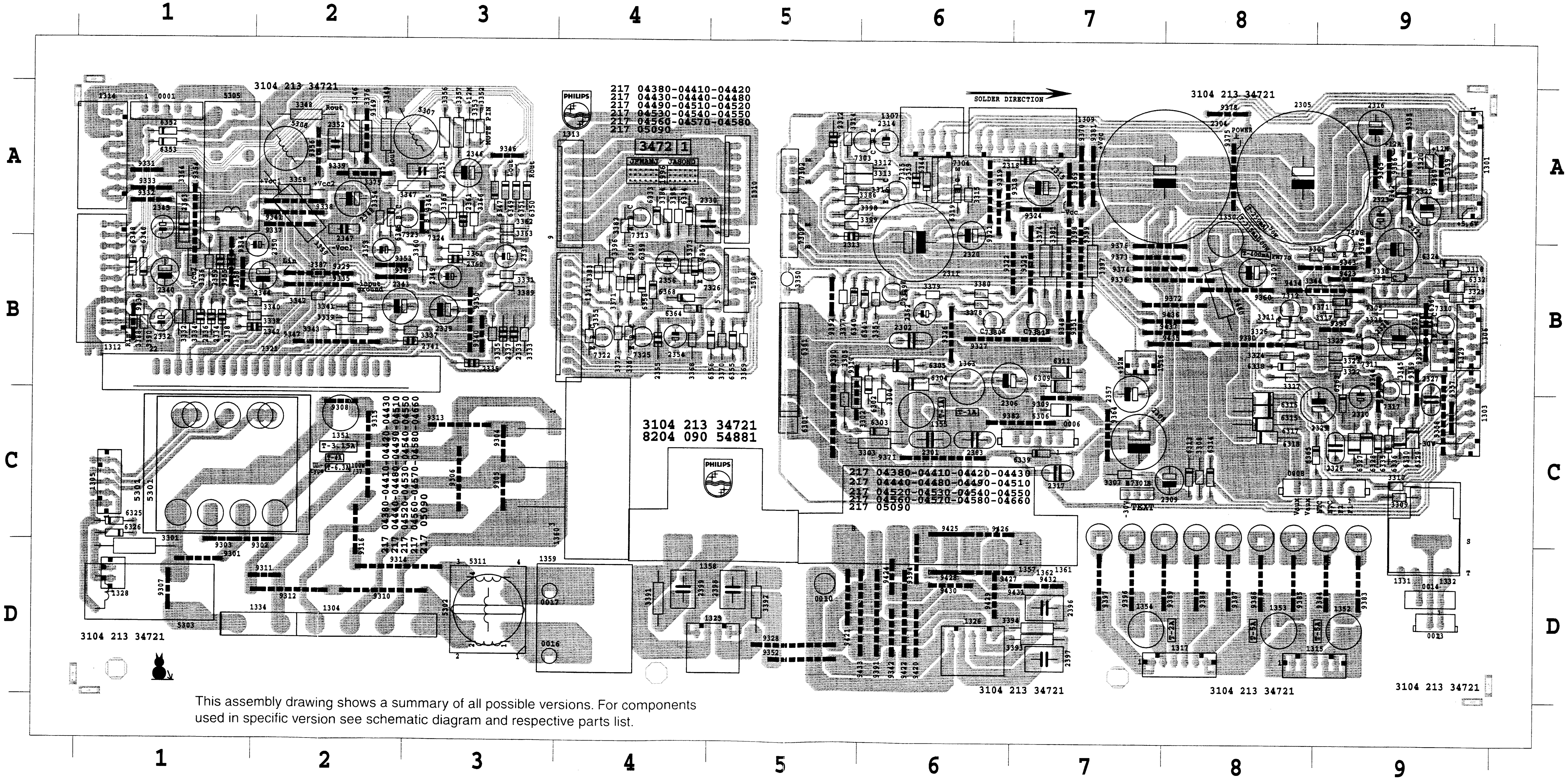
WIRING DIAGRAM


SPEAKER L
SPEAKER R
SURROUND L
SURROUND R
CENTER SPEAKER
POWER 1 MODULE
1357
1358
SPEAKER PANEL
1326
8303
5
0001
2 CHANNEL POWER AMP.
1314
1312
9
11
FAN
1313
1311
1310
1308
CONNECTION CIRCUIT
9
5
1316
1309
1307
1303
To DM58 on AF3 Board
POWER SUPPLY
1301
To DM57 on AF3 Board
0006
0008
1306 *
8301
5
8302
6
8050 *
5
1315
1317
1305 *
1304
Transfo Sec.
Standby Transfo
MAINS IN
XH JST
JQ JST
DIPMATE
* For FW790P/22 only

WIRING DIAGRAM 2 x 50W + 2 x 25W
Adapted from FW770P by S'pore

POWER SUPPLY + 2 CHANNEL AMPLIFIER LAYOUT

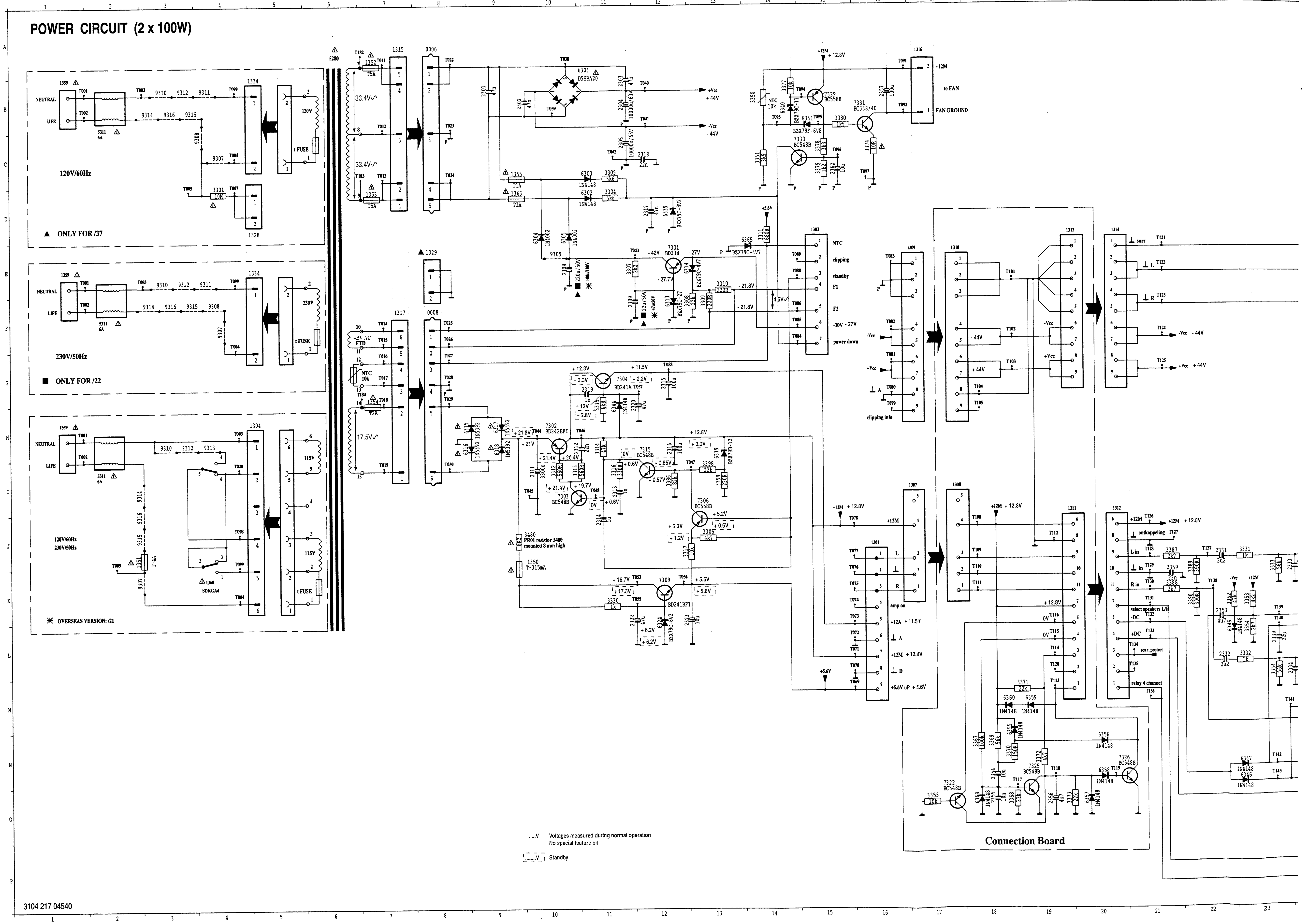
0001 A 1	0301 C 1	1310 A 5	1352 D 9	2307 B 8	2326 C 9	2343 B 2	2360 B 3	3310 C 9	3328 B 9	3345 B 9	3362 A 3	3379 B 6	3397 B 7	6311 B 7	6333 A 4	6352 A 1	7303 A 6	7329 B 6	9315 C 2	9333 A 1	9350 B 3	9369 A 7	9388 D 8	9425 C 6
0006 C 7	0302 C 1	1311 B 4	1353 D 8	2308 C 7	2327 C 9	2344 B 2	2361 A 3	3311 B 8	3329 B 9	3346 A 2	3363 B 3	3380 B 6	3398 A 5	6313 C 8	6334 A 4	6353 A 1	7304 A 6	7330 B 6	9316 C 2	9334 B 1	9351 B 7	9370 A 7	9389 D 8	9426 C 6
0008 C 9	0303 C 1	1312 B 1	1354 D 7	2309 C 8	2328 B 9	2345 A 1	2362 B 6	3312 A 5	3330 B 9	3347 A 3	3364 A 1	3381 B 7	3399 A 5	6314 C 8	6335 C 9	6355 B 5	7305 B 9	7331 B 7	9317 C 5	9335 B 2	9352 D 5	9371 C 6	9390 C 5	9427 D 6
0010 D 5	0304 C 2	1313 A 4	1355 C 6	2310 C 9	2329 C 9	2346 A 3	2363 A 1	3313 A 5	3331 B 3	3348 A 2	3365 A 3	3382 A 4	3480 B 8	6315 C 8	6336 C 9	6356 B 5	7306 B 9	9301 D 1	9318 A 6	9336 B 8	9353 B 2	9372 B 8	9391 D 6	9428 D 6
0013 D 9	0306 C 2	1314 A 1	1357 D 6	2311 B 6	2330 A 4	2347 A 2	2396 D 7	3314 A 5	3332 B 1	3349 A 2	3366 A 3	3383 B 4	5302 D 3	6316 C 8	6338 B 8	6357 B 4	7309 A 5	9302 D 1	9319 A 6	9337 A 2	9354 A 1	9373 B 7	9392 B 5	9429 D 6
0014 D 9	0307 C 1	1315 D 9	1358 D 5	2312 A 5	2331 B 3	2348 A 2	2397 D 7	3315 A 6	3333 B 3	3350 B 5	3367 B 4	3384 A 4	5303 D 1	6317 C 8	6339 C 7	6358 B 4	7310 B 9	9303 D 1	9320 B 9	9338 A 2	9355 B 1	9374 B 8	9393 B 9	9430 D 6
0016 D 3	0308 C 1	1316 B 7	1359 D 4	2313 A 5	2332 B 1	2349 B 3	2398 D 5	3316 A 5	3334 B 1	3351 B 6	3368 B 4	3385 A 4	5305 A 1	6318 C 8	6340 B 5	6359 B 4	7311 B 9	9304 C 3	9321 A 6	9339 A 2	9356 A 2	9375 A 8	9394 D 6	9431 D 7
0017 D 3	0315 C 2	1317 D 8	1360 C 3	2314 A 6	2333 B 3	2350 B 2	2399 D 4	3317 B 9	3335 B 3	3352 A 3	3369 B 5	3386 A 5	5307 A 3	6319 A 6	6341 B 6	6360 B 4	7312 B 8	9305 C 3	9322 B 7	9340 B 3	9357 C 9	9376 B 7	9395 A 9	9432 D 7
0107 C 9	0319 C 1	1325 D 5	1361 D 6	2315 A 7	2334 B 1	2351 A 3	3301 D 1	3318 B 9	3336 B 1	3353 A 3	3370 B 5	3387 B 2	5308 A 2	6324 B 9	6342 A 9	6361 B 5	7313 A 4	9306 C 3	9324 A 7	9341 A 2	9358 C 9	9378 A 8	9396 D 7	9433 D 6
0108 C 9	1301 A 9	1326 D 6	1362 D 6	2316 A 9	2335 B 3	2352 A 2	3302 C 5	3319 A 9	3337 B 3	3354 A 2	3371 B 4	3388 B 1	5311 D 3	6325 C 1	6344 A 6	6363 C 9	7315 A 6	9307 D 1	9325 B 7	9342 D 6	9359 B 9	9380 B 8	9397 D 7	9434 B 9
0109 C 8	1303 C 9	1328 D 1	1363 B 6	2317 C 7	2336 B 1	2353 B 2	3303 C 6	3320 A 9	3338 B 2	3355 B 4	3372 B 4	3389 B 3	6301 B 5	6326 C 1	6345 A 2	6364 B 4	7317 B 9	9308 C 2	9326 B 6	9343 B 2	9360 B 8	9381 A 7	9398 B 7	9435 B 8
0110 C 8	1304 D 2	1329 B 9	2301 C 6	2318 A 7	2337 B 3	2354 B 4	3304 C 6	3322 B 9	3339 B 2	3356 A 3	3373 B 4	3390 B 1	6302 B 6	6327 C 9	6346 B 1	6365 C 9	7321 B 2	9309 C 7	9327 B 6	9344 B 9	9363 B 9	9382 C 7	9399 B 7	9436 B 8
0111 C 8	1305 C 1	1331 D 9	2302 B 6	2319 A 6	2338 B 1	2355 B 4	3305 C 5	3323 B 9	3340 B 2	3357 A 3	3374 B 7	3391 D 4	6303 C 6	6328 C 9	6347 A 3	6367 B 9	7322 B 4	9310 D 2	9328 D 5	9345 A 3	9364 C 7	9383 D 9	9420 D 6	9437 B 8
0112 C 8	1306 B 9	1332 D 9	2303 C 6	2320 A 6	2339 B 3	2356 B 4	3306 B 9	3324 B 8	3341 B 2	3358 A 2	3375 A 2	3392 D 5	6304 B 6	6329 C 9	6348 B 1	6368 B 4	7323 A 3	9311 D 2	9329 B 2	9346 A 3	9365 A 9	9384 D 9	9421 D 5	
0113 C 8	1307 A 6	1334 D 2	2304 A 7	2321 B 9	2340 B 1	2357 C 7	3307 C 7	3325 B 8	3342 B 2	3359 A 2	3376 A 2	3393 D 7	6305 B 6	6330 C 9	6349 A 3	6371 B 9	7324 A 3	9312 D 2	9330 B 1	9347 B 2	9366 A 9	9385 D 8	9422 D 6	
0114 C 7	1308 B 5	1350 A 8	2305 A 8	2322 A 9	2341 B 3	2358 B 1	3308 C 8	3326 B 8	3343 B 2	3360 B 3	3377 B 5	3394 D 7	6306 C 7	6331 B 9	6350 A 3	7301 C 7	7325 B 4	9313 C 3	9331 A 1	9348 B 7	9367 A 9	9386 D 8	9423 B 9	
0115 C 7	1309 A 7	1351 C 2	2306 B 6	2323 A 9	2342 B 2	2359 B 1	3309 C 9	3327 B 8	3344 B 9	3361 B 3	3378 B 6	3396 B 4	6309 B 7	6332 B 9	6351 A 3	7302 A 5	7326 B 5	9314 D 2	9332 A 1	9349 A 2	9368 B 9	9387 D 8	9424 D 6	



This assembly drawing shows a summary of all possible versions. For components used in specific version see schematic diagram and respective parts list.

0001 C26	1307 I16	1313 D19	1326 F27	1351 J 2	1359 H 1	2301 B 9	2309 F11	2316 H12	2323 K12	2336 L24	2342 M26	2348 J26	2354 N18	2360 O25	2397 D28	3308 F13	3314 H11	3332 L23	3338 M26	3346 M26	3352 K22	3358 J25	3364 O26	3370 N18	3376 N26	3387 J21	3394 H28	5305 P29	6301 A11	6314 E13	6324 L12	6346 N23	6355 N18	6365 E14
0006 A 8	1308 I17	1314 D20	1328 D 4	1352 A 7	1359 E 1	2302 B 9	2311 I10	2317 D12	2331 J22	2337 J24	2343 K26	2349 N25	2355 O18	2361 O27	3301 D 4	3309 F13	3315 H11	3333 K23	3339 K26	3347 K26	3353 K23	3359 O25	3365 O27	3371 M19	3377 B14	3388 K21	3394 E28	5307 J27	6302 D11	6315 H 8	6339 D12	6347 N23	6356 N20	6368 O18
0008 F 8	1309 E16	1315 A 7	1329 E 8	1353 D 7	1360 K 4	2303 B11	2312 H10	2318 C12	2332 L22	2338 M24	2344 L26	2350 N25	2356 O19	2362 C15	3304 D11	3310 E13	3316 I11	3334 L23	3340 L26	3348 M27	3354 L23	3360 O25	3366 O27	3372 N19	3378 C15	3389 K22	3398 I13	5308 L27	6303 C11	6316 H 8	6340 B14	6348 N24	6357 O20	7301 E12
1301 J16	1310 E17	1316 A17	1334 E 4	1354 G 7	1361 G31	2304 B11	2313 I11	2319 G11	2333 K23	2339 L23	2345 J25	2351 K26	2357 B16	2396 F28	3305 C11	3311 D14	3317 J12	3335 K24	3341 K26	3349 K27	3355 O17	3361 O26	3367 N18	3373 O19	3379 C15	3390 K22	3399 I13	5311 I 2	6304 D10	6317 H 9	6341 B15	6349 N24	6358 N20	7302 H10
1303 D15	1311 J19	1317 F 7	1334 B 4	1355 C 9	1362 A31	2305 C11	2314 J11	2320 H12	2334 L23	2340 N24	2346 N24	2352 M26	2358 L24	2396 I28	3306 J13	3312 I10	3330 K11	3336 M24	3342 L26	3350 B14	3356 N24	3362 N29	3368 O18	3374 C16	3380 B15	3393 G28	3480 J10	5311 F 2	6305 D10	6318 H 9	6344 H11	6350 M28	6359 M19	7303 I10
1304 H 4	1312 J20	1326 C27	1350 J10	1359 B 1	1363 D 9	2308 E10	2315 G12	2322 K11	2335 K24	2341 I26	2347 J26	2353 K22	2359 K21	2397 H28	3307 E11	3313 I10	3331 J23	3337 I26	3343 K26	3351 C14	3357 O24	3363 N28	3369 N18	3375 L26	3386 I12	3393 D28	5305 J29	5311 B 2	6313 F12	6319 H13	6345 L22	6351 M28	6360 M18	7304 G11

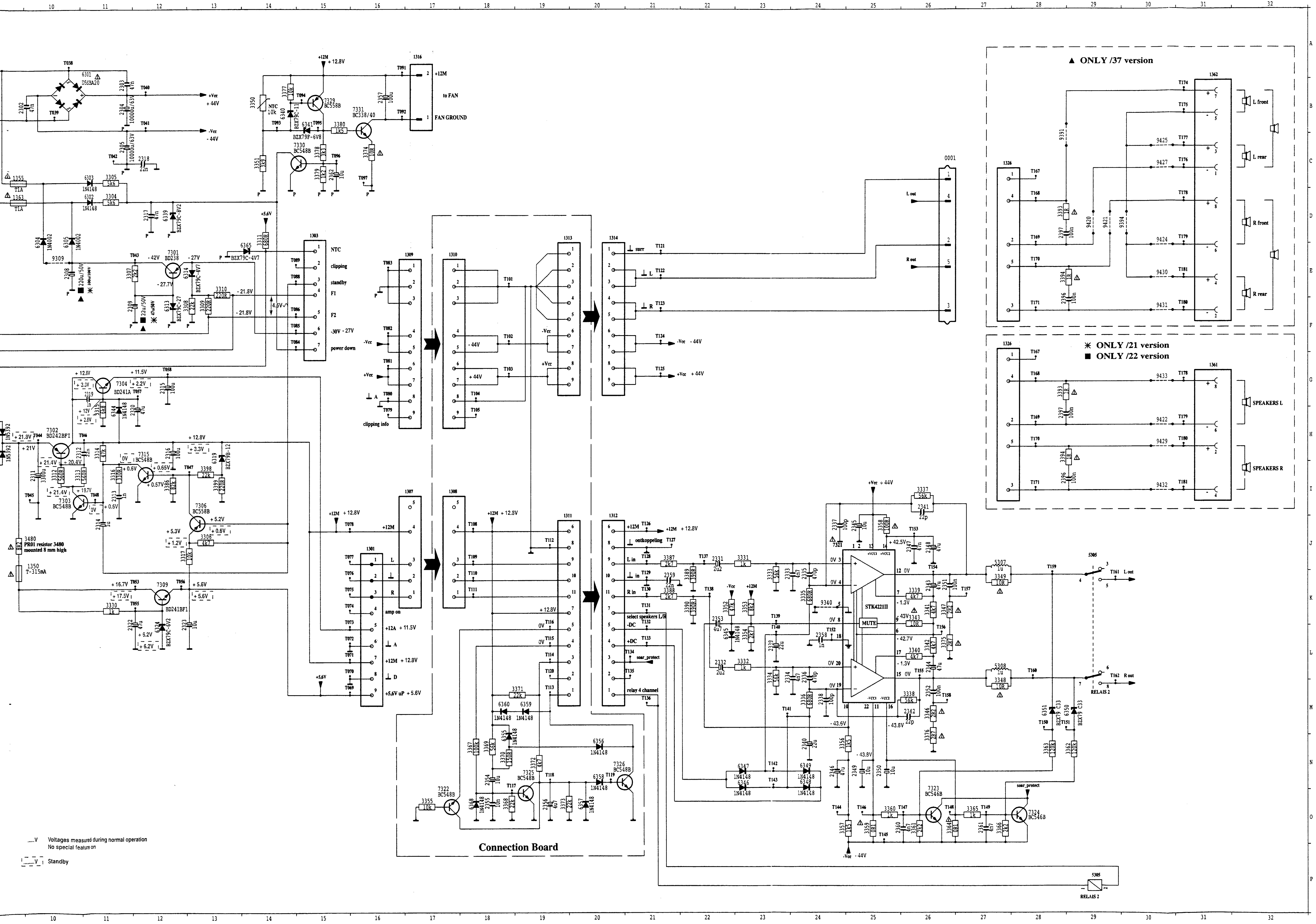
POWER CIRCUIT (2 x 100W)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
NEUTRAL
LIFE
5311
6A
120V/60Hz
▲ ONLY FOR /37
230V/50Hz
■ ONLY FOR /22
120V/60Hz
230V/50Hz
SDKGA4
✳ OVERSEAS VERSION: /21
120V
230V
115V
t FUSE
T-4A
1334
1328
1304
5280
1315
0006
1317
0008
33.4V~
17.5V~
T5A
T2A
T1A
4.5V AC FTD
NTC 10k
DSSBA20
+Vcc + 44V
-Vcc - 44V
BD238
BZX79C-4V7
BZX79C-8V2
1N4002
1N4148
1N5392
BD242BFI
BD241A
BD241BFI
BC548B
BC558B
BC338/40
BZX79F-6V8
BZX79B-12
3480 PR01 resistor 3480 mounted 8 mm high
1350 T-315mA
1303
NTC
clipping
standby
F1
F2
-30V - 27V
power down
1316
+12M
to FAN
FAN GROUND
1309
1310
1313
1314
clipping info
surr
L
R
-Vcc - 44V
+Vcc + 44V
1301
1307
1308
1311
1312
amp on
+12A + 11.5V
A
+12M + 12.8V
D
+5.6V uP + 5.6V
ontkoppeling
L in
R in
select speakers L/R
-DC
+DC
soar_protect
relay 4 channel
Connection Board

__V Voltages measured during normal operation
No special feature on

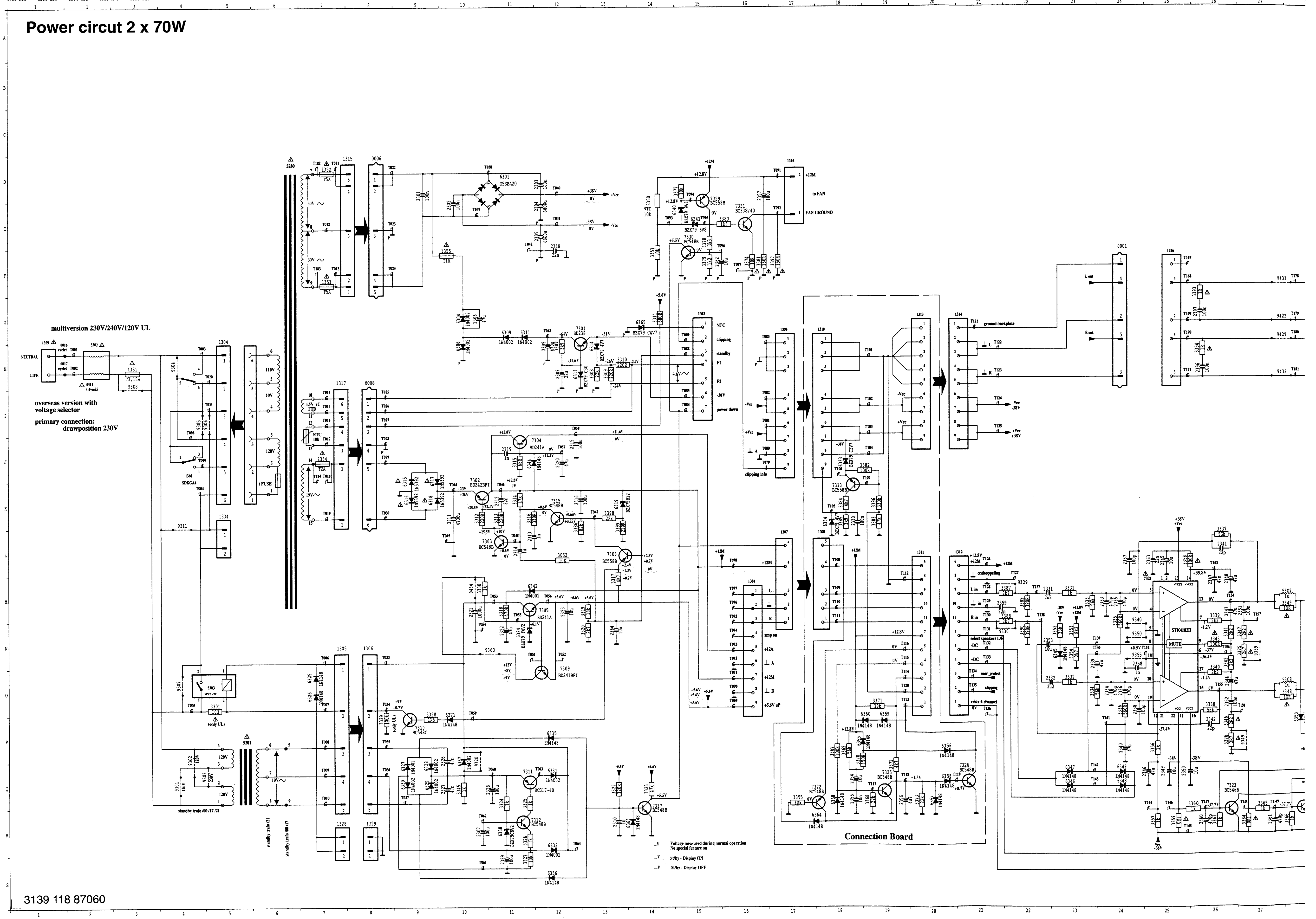
[__V] Standby

	N18
	O18
	O19
	B16
	L24
	K21
2360	O25
2361	O27
2362	C15
2396	F28
2396	I28
2397	H28
2397	D28
3301	D 4
3304	D11
3305	C11
3306	J13
3307	E11
3308	F13
3309	F13
3310	E13
3311	D14
3312	I10
3313	I10
3314	H11
3315	H11
3316	I11
3317	J12
3330	K11
3331	J23
3332	L23
3333	K23
3334	L23
3335	K24
3336	M24
3337	I26
3338	M26
3339	K26
3340	L26
3341	K26
3342	L26
3343	K26
3346	M26
3347	K26
3348	M27
3349	K27
3350	B14
3351	C14
3352	K22
3353	K23
3354	L23
3355	O17
3356	N24
3357	O24
3358	J25
3359	O25
3360	O25
3361	O26
3362	N29
3363	N28
3364	O26
3365	O27
3366	O27
3367	N18
3368	O18
3369	N18
3370	N18
3371	M19
3372	N19
3373	O19
3374	C16
3375	L26
3376	N26
3377	B14
3378	C15
3379	C15
3380	B15
3386	I12
3387	J21
3388	K21
3389	K22
3390	K22
3393	G28
3393	D28
3394	H28
3394	E28
3398	I13
3399	I13
3480	J10
5305	J29
5305	P29
5307	J27
5308	L27
5311	I 2
5311	F 2
5311	B 2
6301	A11
6302	D11
6303	C11
6304	D10
6305	D10
6313	F12
6314	E13
6315	H 8
6316	H 8
6317	H 9
6318	H 9
6319	H13
6324	L12
6339	D12
6340	B14
6341	B15
6344	H11
6345	L22
6346	N23
6347	N23
6348	N24
6349	N24
6350	M28
6351	M28
6355	N18
6356	N20
6357	O20
6358	N20
6359	M19
6360	M18
6365	E14
6368	O18
7301	E12
7302	H10
7303	I10
7304	G11
7306	I13
7309	K12
7315	H12
7321	J24
7322	O17
7323	O26
7324	O28
7325	N19
7326	N20
7329	B15
7330	C15
7331	B16
9307	C 4
9307	F 4
9307	K 2
9308	F 4
9308	C 4
9309	E10
9310	B 3
9310	E 3
9310	H 3
9311	B 4
9311	E 4
9312	B 3
9312	E 3
9312	H 3
9313	H 4
9314	I 2
9314	B 3
9314	F 3
9315	J 2
9315	B 3
9315	F 3
9316	B 3
9316	J 2
9316	F 3
9340	K24
9391	C28
9394	D30
9420	D29
9421	D29
9422	H30
9424	D30
9425	C30
9427	C30
9429	H30
9430	E30
9431	F30
9432	I30
9433	G30


▲ ONLY /37 version
✳ ONLY /21 version
■ ONLY /22 version
Connection Board
STK4221II
MUTE
L front
L rear
R front
R rear
SPEAKERS L
SPEAKERS R
to FAN
FAN GROUND
NTC
clipping
standby
F1
F2
power down
clipping info
amp on
surr
onkoppeling
L in
R in
select speakers L/R
-DC
+DC
sosr_protect
relay 4 channel
L out
R out
RELAIS 2
PR01 resistor 3480 mounted 8 mm high
T-315mA
....V Voltages measured during normal operation
No special features on
....V Standby

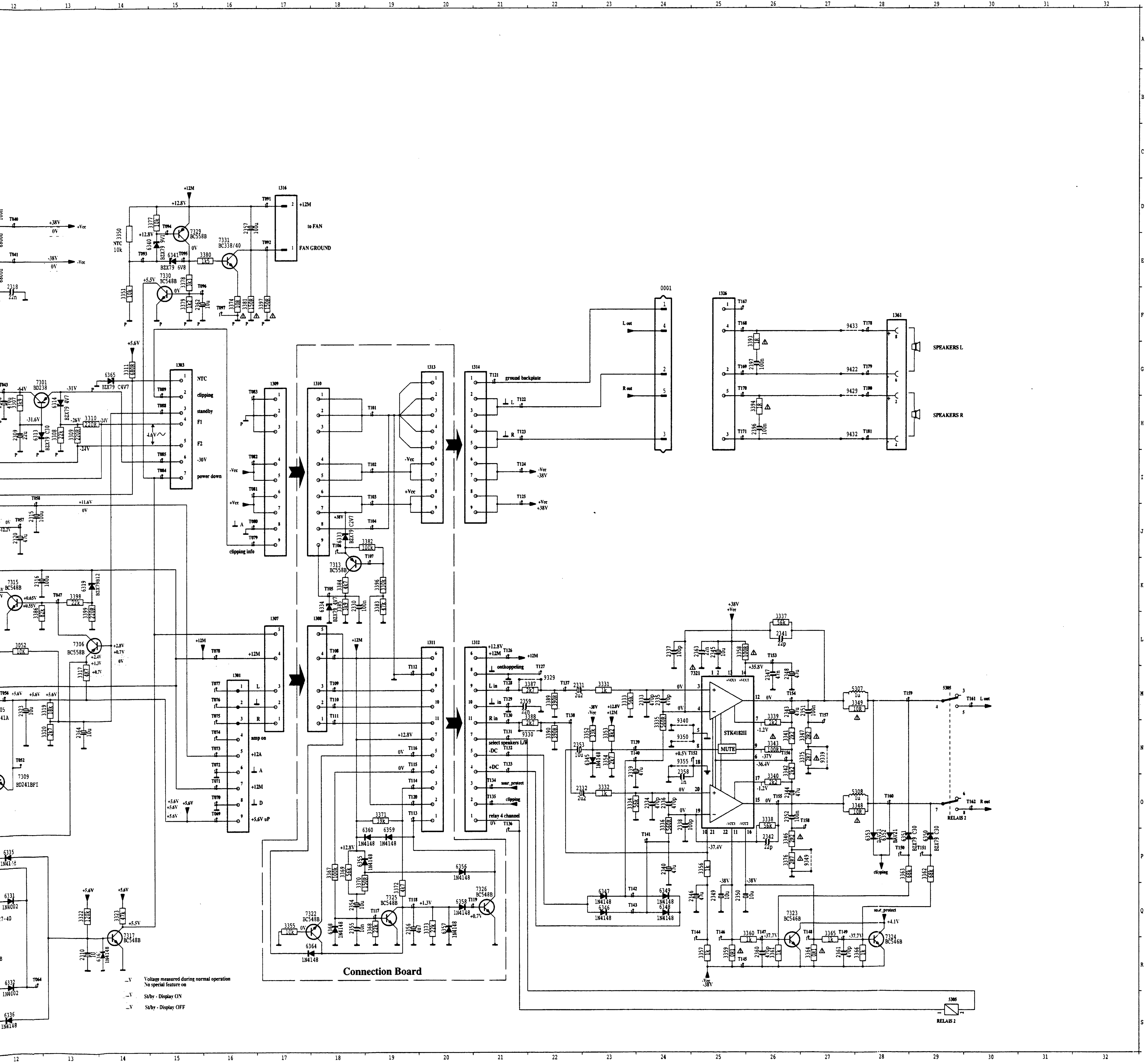
0001	E24
0006	D 8
0008	H 8
0016	H 1
0017	H 1
1301	M16
1303	G15
1304	G 5
1305	N 7
1306	N 8
1307	L17
1308	L18
1309	G17
1310	G18
1311	L20
1312	L21
1313	G20
1314	G21
1315	D 7
1316	D17
1317	H 7
1326	F25
1328	R 7
1329	R 8
1334	K 5
1351	H 3
1352	D 7
1353	F 7
1354	J 7
1355	F10
1359	G 1
1360	J 4
2301	D 9
2302	E10
2303	D12
2304	E12
2305	E12
2306	G10
2307	R10
2308	H12
2309	H12
2310	R13
2311	K10
2312	K11
2313	L11
2314	L11
2315	J12
2316	K12
2318	E12
2319	J11
2320	J12
2321	M10
2322	N11
2323	M12
2326	P10
2327	Q10
2328	Q11
2329	S11
2330	K18
2331	M22
2332	O23
2333	M24
2334	O24
2335	M24
2336	O24
2337	L24
2338	O24
2339	N23
2340	P24
2341	L26
2342	P26
2343	M26
2344	O26
2345	L25
2346	Q25
2347	M26
2348	M26
2349	Q25
2350	Q25
2351	M27
2352	O26
2353	N22
2354	Q18
2355	Q18
2356	Q19
2357	D16
2358	N24
2359	M21
2360	R26
2361	R27
2362	F15
2363	L25
2364	N13
2396	H26
2397	G26
3052	L12
3301	O 5
3307	H12
3308	H13
3309	H13
3310	H13
3311	G14
3312	K10
3313	K11
3314	K11
3315	J11
3316	K11
3317	M13
3318	M11
3319	M13
3320	N13
3322	Q13
3323	Q14
3324	Q11
3325	Q11
3326	R11
3327	S11
3328	P 9
3329	P 8
3330	M10
3331	M23
3332	O23
3333	M23
3334	O23
3335	N24
3336	O24
3337	L26
3338	O26
3339	M26
3340	O26
3341	N26
3342	N26
3343	N26
3345	Q10
3346	P26
3347	N27
3348	O28
3349	M28
3350	D14
3351	F14
3352	N23
3353	N23
3354	N23
3355	Q17
3356	P25
3357	R25
3358	L25
3359	R25
3360	Q26
3361	R26
3362	P29
3363	P28
3364	R27
3365	Q27
3366	R28
3367	P18
3368	Q19
3369	P18
3370	P18
3371	O19
3372	Q19
3373	Q20
3374	F16
3375	N27
3376	P26
3377	D15
3378	E15
3379	F15
3380	E16
3381	F16
3382	J19
3383	K19
3384	K18
3385	K18
3386	K12
3387	M22
3388	M22
3389	M22
3390	N22
3393	F26
3394	H26
3396	K19
3397	F17
3398	K13
3399	K13
5302	H 2
5303	O 5
5305	M29
5305	S29
5307	M28
5308	O28
5311	H 2
6301	D11
6304	G10
6306	H10
6309	G11
6311	G11
6313	H12
6314	H13
6315	J 9
6316	K 9
6317	J 9
6318	K 9
6319	K13
6324	N11
6325	O 7
6326	O 7
6327	Q 9
6328	Q 9
6329	Q 9
6330	Q 9
6331	Q12
6332	R12
6333	J18
6334	K18
6335	P12
6336	S12
6338	R11
6340	E14
6341	E15
6342	M11
6344	J11
6345	N23
6346	Q23
6347	Q23
6348	Q24
6349	Q24
6350	P29
6351	P28
6352	P28
6353	P28
6355	P18
6356	P20
6357	Q20
6358	Q20
6359	O19
6360	O19
6361	E11
6363	R14
6364	R18
6365	G14
6367	P10
6368	Q18
6371	P10
7301	G12
7302	J10
7303	L11
7304	J11
7305	M12
7306	L13
7309	O12
7310	P 9

Power circut 2 x 70W


multiversion 230V/240V/120V UL
NEUTRAL
LIFE
overseas version with voltage selector
primary connection: drawposition 230V
SDKGA4
standby trafo /00 /17 /21
standby trafo /00 /17
t FUSE
NTC
to FAN
FAN GROUND
NTC
clipping
standby
F1
F2
-38V
power down
clipping info
L out
R out
ground backplate
Connection Board
STK4182II
MUTE
amp on
onthoppeling
select speakers L/R
near_protect
relay 4 channel
Voltage measured during normal operation
No special feature on
St/by - Display ON
St/by - Display OFF

3139 118 87060

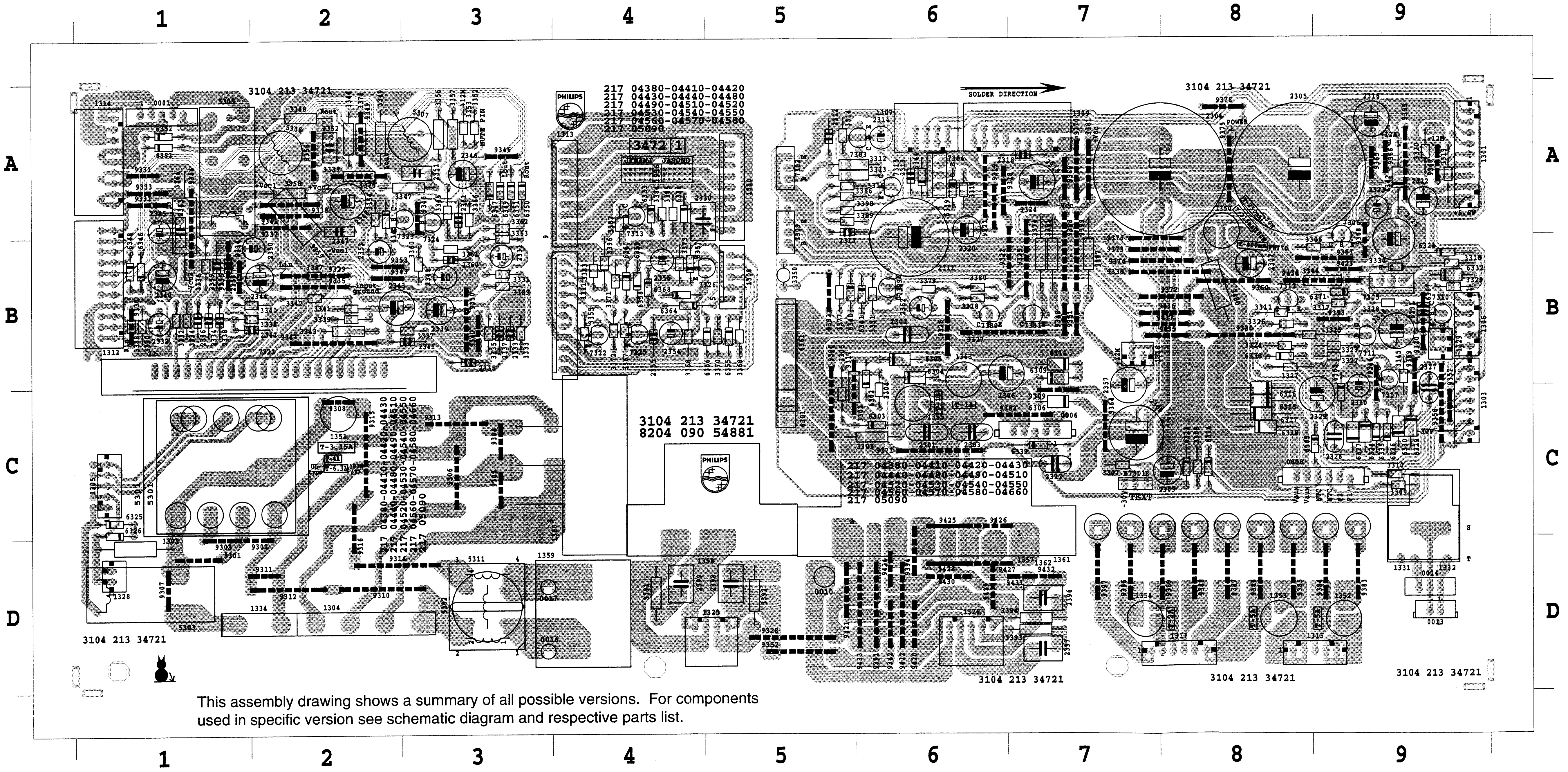
	K10
	K11
	K11
	J11
	K11
	M13
3318	M11
3319	M13
3320	N13
3322	Q13
3323	Q14
3324	Q11
3325	Q11
3326	R11
3327	S11
3328	P 9
3329	P 8
3330	M10
3331	M23
3332	O23
3333	M23
3334	O23
3335	N24
3336	O24
3337	L26
3338	O26
3339	M26
3340	O26
3341	N26
3342	N26
3343	N26
3345	Q10
3346	P26
3347	N27
3348	O28
3349	M28
3350	D14
3351	F14
3352	N23
3353	N23
3354	N23
3355	Q17
3356	P25
3357	R25
3358	L25
3359	R25
3360	Q26
3361	R26
3362	P29
3363	P28
3364	R27
3365	Q27
3366	R28
3367	P18
3368	Q19
3369	P18
3370	P18
3371	O19
3372	Q19
3373	Q20
3374	F16
3375	N27
3376	P26
3377	D15
3378	E15
3379	F15
3380	E16
3381	F16
3382	J19
3383	K19
3384	K18
3385	K18
3386	K12
3387	M22
3388	M22
3389	M22
3390	N22
3393	F26
3394	H26
3396	K19
3397	F17
3398	K13
3399	K13
5302	H 2
5303	O 5
5305	M29
5305	S29
5307	M28
5308	O28
5311	H 2
6301	D11
6304	G10
6306	H10
6309	G11
6311	G11
6313	H12
6314	H13
6315	J 9
6316	K 9
6317	J 9
6318	K 9
6319	K13
6324	N11
6325	O 7
6326	O 7
6327	Q 9
6328	Q 9
6329	Q 9
6330	Q 9
6331	Q12
6332	R12
6333	J18
6334	K18
6335	P12
6336	S12
6338	R11
6340	E14
6341	E15
6342	M11
6344	J11
6345	N23
6346	Q23
6347	Q23
6348	Q24
6349	Q24
6350	P29
6351	P28
6352	P28
6353	P28
6355	P18
6356	P20
6357	Q20
6358	Q20
6359	O19
6360	O19
6361	E11
6363	R14
6364	R18
6365	G14
6367	P10
6368	Q18
6371	P10
7301	G12
7302	J10
7303	L11
7304	J11
7305	M12
7306	L13
7309	O12
7310	P 9
7311	Q11
7312	R11
7313	K18
7315	K12
7317	Q14
7321	M25
7322	Q17
7323	Q26
7324	R28
7325	Q19
7326	Q21
7329	D15
7330	E15
7331	E16
9301	Q 4
9302	P 4
9303	Q 5
9304	H 4
9305	I 4
9306	I 5
9307	O 4
9308	H 3
9311	K 4
9320	P10
9329	M22
9330	N22
9339	N27
9340	N24
9349	P27
9350	N24
9355	N24
9360	N11
9422	G27
9429	G27
9432	H27
9433	F27
9434	M10



12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
+12M
+12.8V
1316
+12M
to FAN
FAN GROUND
NTC
10k
7329
BC558B
7331
BC338/40
7310
BC548B
BZX79 6V8
+38V
-38V
+Vcc
-Vcc
1303
NTC
clipping
standby
F1
F2
-30V
power down
7301
BD238
BZX79 C4V7
1309
1310
1313
1314
ground backplate
L
R
-Vcc
-38V
+Vcc
+38V
clipping info
0001
L out
R out
1326
1361
SPEAKERS L
SPEAKERS R
9433
9422
9429
9432
7313
BC558B
7315
BC548B
7306
BC558B
7309
BD241BFI
1307
1308
1301
1311
1312
amp on
+12A
+5.6V uP
onthoppeling
L in
R in
select speakers L/R
-DC
+DC
sour_protect
clipping
relay 4 channel
STK4182II
MUTE
5307
5308
5305
RELAIS 2
L out
R out
7322
BC548B
7325
BC548B
7326
BC548B
7317
BC548B
7323
BC546B
7324
BC546B
1N4148
1N4002
Connection Board
_V Voltage measured during normal operation
No special feature on
_V St/by - Display ON
_V St/by - Display OFF

POWER BOARD LAYOUT

0001 A 1	0301 C 1	1310 A 5	1352 D 9	2307 B 8	2326 C 9	2343 B 2	2360 B 3	3310 C 9	3328 B 9	3345 B 9	3362 A 3	3379 B 6	3397 B 7	6311 B 7	6333 A 4	6352 A 1	7303 A 6	7329 B 6	9315 C 2	9333 A 1	9350 B 3	9369 A 7	9388 D 8	9425 C 6
0006 C 7	0302 C 1	1311 B 4	1353 D 8	2308 C 7	2327 C 9	2344 B 2	2361 A 3	3311 B 8	3329 B 9	3346 A 2	3363 B 3	3380 B 6	3398 A 5	6313 C 8	6334 A 4	6353 A 1	7304 A 6	7330 B 6	9316 C 2	9334 B 1	9351 B 7	9370 A 7	9389 D 8	9426 C 6
0008 C 9	0303 C 1	1312 B 1	1354 D 7	2309 C 8	2328 B 9	2345 A 1	2362 B 6	3312 A 5	3330 B 9	3347 A 3	3364 A 1	3381 B 7	3399 A 5	6314 C 8	6335 C 9	6355 B 5	7305 B 9	7331 B 7	9317 C 5	9335 B 2	9352 D 5	9371 C 6	9390 C 5	9427 D 6
0010 D 5	0304 C 2	1313 A 4	1355 C 6	2310 C 9	2329 C 9	2346 A 3	2363 A 1	3313 A 5	3331 B 3	3348 A 2	3365 A 3	3382 A 4	3480 B 8	6315 C 8	6336 C 9	6356 B 5	7306 B 9	9301 D 1	9318 A 6	9336 B 8	9353 B 2	9372 B 8	9391 D 6	9428 D 6
0013 D 9	0306 C 2	1314 A 1	1357 D 6	2311 B 6	2330 A 4	2347 A 2	2396 D 7	3314 A 5	3332 B 1	3349 A 2	3366 A 3	3383 B 4	5302 D 3	6316 C 8	6338 B 8	6357 B 4	7309 A 5	9302 D 1	9319 A 6	9337 A 2	9354 A 1	9373 B 7	9392 B 5	9429 D 6
0014 D 9	0307 C 1	1315 D 9	1358 D 5	2312 A 5	2331 B 3	2348 A 2	2397 D 7	3315 A 6	3333 B 3	3350 B 5	3367 B 4	3384 A 4	5303 D 1	6317 C 8	6339 C 7	6358 B 4	7310 B 9	9303 D 1	9320 B 9	9338 A 2	9355 B 1	9374 B 8	9393 B 9	9430 D 6
0016 D 3	0308 C 1	1316 B 7	1359 D 4	2313 A 5	2332 B 1	2349 B 3	2398 D 5	3316 A 5	3334 B 1	3351 B 6	3368 B 4	3385 A 4	5305 A 1	6318 C 8	6340 B 5	6359 B 4	7311 B 9	9304 C 3	9321 A 6	9339 A 2	9356 A 2	9375 A 8	9394 D 6	9431 D 7
0017 D 3	0315 C 2	1317 D 8	1360 C 3	2314 A 6	2333 B 3	2350 B 2	2399 D 4	3317 B 9	3335 B 3	3352 A 3	3369 B 5	3386 A 5	5307 A 3	6319 A 6	6341 B 6	6360 B 4	7312 B 8	9305 C 3	9322 B 7	9340 B 3	9357 C 9	9376 B 7	9395 A 9	9432 D 7
0107 C 9	0319 C 1	1325 D 5	1361 D 6	2315 A 7	2334 B 1	2351 A 3	3301 D 1	3318 B 9	3336 B 1	3353 A 3	3370 B 5	3387 B 2	5308 A 2	6324 B 9	6342 A 9	6361 B 5	7313 A 4	9306 C 3	9324 A 7	9341 A 2	9358 C 9	9378 A 8	9396 D 7	9433 D 6
0108 C 9	1301 A 9	1326 D 6	1362 D 6	2316 A 9	2335 B 3	2352 A 2	3302 C 5	3319 A 9	3337 B 3	3354 A 2	3371 B 4	3388 B 1	5311 D 3	6325 C 1	6344 A 6	6363 C 9	7315 A 6	9307 D 1	9325 B 7	9342 D 6	9359 B 9	9380 B 8	9397 D 7	9434 B 9
0109 C 8	1303 C 9	1328 D 1	1363 B 6	2317 C 7	2336 B 1	2353 B 2	3303 C 6	3320 A 9	3338 B 2	3355 B 4	3372 B 4	3389 B 3	6301 B 5	6326 C 1	6345 A 2	6364 B 4	7317 B 9	9308 C 2	9326 B 6	9343 B 2	9360 B 8	9381 A 7	9398 B 7	9435 B 8
0110 C 8	1304 D 2	1329 B 9	2301 C 6	2318 A 7	2337 B 3	2354 B 4	3304 C 6	3322 B 9	3339 B 2	3356 A 3	3373 B 4	3390 B 1	6302 B 6	6327 C 9	6346 B 1	6365 C 9	7321 B 2	9309 C 7	9327 B 6	9344 B 9	9363 B 9	9382 C 7	9399 B 7	9436 B 8
0111 C 8	1305 C 1	1331 D 9	2302 B 6	2319 A 6	2338 B 1	2355 B 4	3305 C 5	3323 B 9	3340 B 2	3357 A 3	3374 B 7	3391 D 4	6303 C 6	6328 C 9	6347 A 3	6367 B 9	7322 B 4	9310 D 2	9328 D 5	9345 A 3	9364 C 7	9383 D 9	9420 D 6	9437 B 8
0112 C 8	1306 B 9	1332 D 9	2303 C 6	2320 A 6	2339 B 3	2356 B 4	3306 B 9	3324 B 8	3341 B 2	3358 A 2	3375 A 2	3392 D 5	6304 B 6	6329 C 9	6348 B 1	6368 B 4	7323 A 3	9311 D 2	9329 B 2	9346 A 3	9365 A 9	9384 D 9	9421 D 5	
0113 C 8	1307 A 6	1334 D 2	2304 A 7	2321 B 9	2340 B 1	2357 C 7	3307 C 7	3325 B 8	3342 B 2	3359 A 2	3376 A 2	3393 D 7	6305 B 6	6330 C 9	6349 A 3	6371 B 9	7324 A 3	9312 D 2	9330 B 1	9347 B 2	9366 A 9	9385 D 8	9422 D 6	
0114 C 7	1308 B 5	1350 A 8	2305 A 8	2322 A 9	2341 B 3	2358 B 1	3308 C 8	3326 B 8	3343 B 2	3360 B 3	3377 B 5	3394 D 7	6306 C 7	6331 B 9	6350 A 3	7301 C 7	7325 B 4	9313 C 3	9331 A 1	9348 B 7	9367 A 9	9386 D 8	9423 B 9	
0115 C 7	1309 A 7	1351 C 2	2306 B 6	2323 A 9	2342 B 2	2359 B 1	3309 C 9	3327 B 8	3344 B 9	3361 B 3	3378 B 6	3396 B 4	6309 B 7	6332 B 9	6351 A 3	7302 A 5	7326 B 5	9314 D 2	9332 A 1	9349 A 2	9368 B 9	9387 D 8	9424 D 6	



This assembly drawing shows a summary of all possible versions. For components used in specific version see schematic diagram and respective parts list.

ELECTRICAL PARTS LIST - POWER BOARD (2 x 100W version)

MISCELLANEOUS

1350	4822 071 53151	⚠	FUSE T315mA 250V
1350	4822 252 51151	⚠	FUSE T315mA /37
1351	4822 071 54002	⚠	FUSE T4A /21S/41S
1351	4822 252 51123	⚠	FUSE T6.3A /37
1352	4822 071 55002	⚠	FUSE T5A
1353	4822 071 55002	⚠	FUSE T5A
1354	4822 071 52002	⚠	FUSE T2A
1355	4822 071 51002	⚠	FUSE T1A
1359	4822 265 31015	⚠	MAINS SOCKET
1359	4822 265 31016	⚠	MAINS SOCKET /37
1360	4822 272 10269	⚠	VOLTAGE SELECTOR /21S/41S
1361	4822 267 31176		LOUDSPEAKER SOCKET
1362	4822 267 51376		LOUDSPEAKER SOCKET /37
1363	4822 071 51002	⚠	FUSE T1A
5001	4822 361 10689		DC BRUSHLESS FAN

CAPACITORS

2301	4822 121 43875	47NF5% 250V
2302	4822 121 43875	47NF5% 250V
2303	4822 121 43875	47NF5% 250V
2304	4822 124 80565	10000UF 63V
2305	4822 124 80565	10000UF 63V
2308	4822 124 11505	100UF 100V
2308	5322 124 22094	220UF 50V /37
2309	4822 124 80196	47UF 50V /22/21
2309	4822 124 41596	22UF20% 50V /37
2311	4822 124 42367	3300UF 35V
2312	4822 126 11585	22NF+80-20% Y5V 25V
2313	4822 122 33197	1NF 10% 50V
2314	4822 124 40242	1UF20% 63V
2315	4822 124 81029	100UF20% 25V
2316	4822 124 81029	100UF20% 25V
2317	4822 121 43526	47NF 5% 250V
2318	4822 126 11585	22NF+80-20% Y5V 25V
2319	4822 122 33197	1NF 10% 50V
2320	4822 124 40433	47UF20% 25V
2322	4822 124 40433	47UF20% 25V
2323	4822 124 41579	10UF 20% 50V
2330	5322 121 42386	100NF 5% 63V
2331	4822 124 41576	2,2UF 20% 50V
2332	4822 124 41576	2,2UF 20% 50V
2333	4822 126 11714	4,7NF20%
2334	4822 126 11714	4,7NF20%
2335	4822 122 33519	470PF10% 50V
2336	4822 122 33519	470PF10% 50V
2337	4822 122 10466	220PF10% 50V
2338	4822 122 10466	220PF10% 50V
2339	4822 124 41596	22UF20% 50V
2340	4822 124 41596	22UF20% 50V
2341	4822 122 33191	22PF 5% 50V
2342	4822 122 33191	22PF 5% 50V
2343	4822 124 80196	47UF20% 50V
2344	4822 124 80196	47UF20% 50V
2345	4822 124 40248	10UF 63V
?	4822 124 11564	1000UF 20% 50V LA5
2346	4822 124 80196	47UF20% 50V
2347	4822 121 43526	47NF 5% 250V
2348	4822 124 41069	47UF 63V
2349	4822 124 40248	10UF 63V
2350	4822 124 40248	10UF 63V
2351	5322 121 42386	100NF 5% 63V
2352	5322 121 42386	100NF 5% 63V
2353	4822 124 40246	4,7UF20% 63V
2354	4822 124 41579	10UF 20% 50V
2355	4822 121 51387	10NF20% 16V
2356	4822 124 40246	4,7UF20% 63V
2357	4822 124 81029	100UF20% 25V
2358	4822 122 33197	1NF 10% 50V
2359	4822 126 11585	22NF+80-20% Y5V 25V
2360	4822 126 11714	4,7NF20%
2361	4822 126 11714	4,7NF20%
2362	4822 124 41579	10UF 20% 50V
2396	5322 121 42386	100NF 5% 63V
2397	5322 121 42386	100NF 5% 63V

RESISTORS

3301	4822 053 21106	⚠	10M 5% 0,5W /37
3304	4822 116 52289		5K6 5% 0,5W
3305	4822 116 52289		5K6 5% 0,5W
3306	4822 116 52283		4K7 5% 0,5W
3307	4822 116 52256		2K2 5% 0,5W
3308	4822 116 52257		22K 5% 0,5W
3309	4822 116 83872		220R 5% 0,5W
3310	4822 116 83872		220R 5% 0,5W
3311	4822 116 52228		680E 5% 0,5W
3312	4822 050 25601		560R00 1% 0,6W
3313	4822 050 25601		560R00 1% 0,6W
3314	4822 116 83884		47K 5% 0,5W
3315	4822 116 83961		6K8 5%
3316	4822 116 52219		330E 5% 0,5W
3317	4822 116 83864		10K 5% 0,5W
3330	4822 050 11002		1K00 1% 0,4W
3331	4822 050 11002		1K00 1% 0,4W
3332	4822 050 11002		1K00 1% 0,4W
3333	4822 116 52291		56K 5% 0,5W
3334	4822 116 52291		56K 5% 0,5W
3335	4822 116 52228		680E 5% 0,5W
3336	4822 116 52228		680E 5% 0,5W
3337	4822 116 52291		56K 5% 0,5W
3338	4822 116 52291		56K 5% 0,5W
3339	4822 116 52283		4K7 5% 0,5W
3340	4822 116 52283		4K7 5% 0,5W
3341	4822 116 52283		4K7 5% 0,5W
3342	4822 116 52283		4K7 5% 0,5W
3343	4822 052 10109	⚠	10R00 5% 0,33W
3346	4822 052 10228	⚠	2R20 5% 0,33W
3347	4822 052 10228	⚠	2R20 5% 0,33W
3348	4822 052 10109	⚠	10R00 5% 0,33W
3349	4822 052 10109	⚠	10R00 5% 0,33W
3350	4822 117 12063		NTC DC 5W 10K 5%
3351	4822 116 52276		3K9 5% 0,5W
3352	4822 116 83884		47K 5% 0,5W
3353	4822 116 52303		8K2 5% 0,5W
3354	4822 116 52263		2K7 5% 0,5W
3355	4822 116 83864		10K 5% 0,5W
3356	4822 050 21502		1K50 1% 0,6W
3357	4822 050 21502		1K50 1% 0,6W
3358	4822 052 10101	⚠	100R00 5% 0,33W
3359	4822 113 80633	⚠	0R1 5% 3W
3360	4822 050 11002		1K00 1% 0,4W
3361	4822 116 52256		2K2
3362	4822 116 52239		120K
3363	4822 116 52239		120K
3364	4822 113 80633	⚠	0R1 5% 3W
3365	4822 050 11002		1K00 1% 0,4W
3366	4822 116 52256		2K2
3367	4822 116 52234		100K 5% 0,5W
3368	4822 116 52257		22K 5% 0,5W
3369	4822 116 52291		56K 5% 0,5W
3370	4822 116 83868		150R 5% 0,5W
3371	4822 116 52257		22K 5% 0,5W
3372	4822 116 52283		4K7 5% 0,5W
3373	4822 116 52257		22K 5% 0,5W
3374	4822 052 10109	⚠	10R00 5% 0,33W
3375	4822 052 10278	⚠	2R70 5% 0,33W
3376	4822 052 10278	⚠	2R70 5% 0,33W
3377	4822 116 83864		10K 5% 0,5W
3378	4822 116 52269		3K3 5% 0,5W
3379	4822 116 52207		1K2 5% 0,5W
3380	4822 116 52243		1K5 5% 0,5W
3382	4822 116 52234		100K 5% 0,5W
3383	4822 116 52234		100K 5% 0,5W
3384	4822 116 52283		4K7 5% 0,5W
3385	4822 116 52276		3K9 5% 0,5W
3386	4822 116 52304		82K 5% 0,5W
3387	4822 116 52263		2K7 5% 0,5W
3388	4822 116 52263		2K7 5% 0,5W
3389	4822 116 52222		390E 5% 0,5W
3390	4822 116 52222		390E 5% 0,5W
3393	4822 052 10108	⚠	1R00 5% 0,33W
3394	4822 052 10108	⚠	1R00 5% 0,33W
3396	4822 116 52272		330K 5% 0,5W
3398	4822 116 52257		22K 5% 0,5W
3399	4822 116 83872		220R 5% 0,5W
3480	4822 053 10828	⚠	8R20 5% 1W

COILS & FILTERS

5305	4822 280 80777		RELAY 2P 12V 5A
5307	4822 157 70599		IND FXD BEAD EMI
5308	4822 157 70599		IND FXD BEAD EMI
5311	4822 157 10417	⚠	MAINS CHOKE 6A

DIODES

6301	4822 130 82078	⚠	D5SBA20
6302	4822 130 30621		1N4148
6303	4822 130 30621		1N4148
6304	5322 130 30684		1N4002GP
6305	5322 130 30684		1N4002GP
6313	4822 130 34379		BZX79-C27
6314	4822 130 34174		BZX79-C4V7
6315	5322 130 80686	⚠	1N5392
6316	5322 130 80686	⚠	1N5392
6317	5322 130 80686	⚠	1N5392
6318	5322 130 80686	⚠	1N5392
6319	4822 130 34197		BZX79-B12
6324	4822 130 34167		BZX79-C6V2
6333	5322 130 34563		BZX79-C2V7
6334	4822 130 34174		BZX79-C4V7
6339	4822 130 34382		BZX79-C8V2
6340	4822 130 34488		BZX79-C11
6341	4822 130 34278		BZX79-F6V8
6344	4822 130 30621		1N4148
6345	4822 130 30621		1N4148
6346	4822 130 30621		1N4148
6347	4822 130 30621		1N4148
6348	4822 130 30621		1N4148
6349	4822 130 30621		1N4148
6350	4822 130 34142		BZX79-C33
6351	4822 130 34142		BZX79-C33
6352	4822 130 30842		BAV21
6353	4822 130 30842		BAV21
6355	4822 130 30621		1N4148
6356	4822 130 30621		1N4148
6357	4822 130 30621		1N4148
6358	4822 130 30621		1N4148
6359	4822 130 30621		1N4148
6360	4822 130 30621		1N4148
6365	4822 130 34174		BZX79-C4V7
6368	4822 130 30621		1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7301	4822 130 40917		BD238
7302	4822 130 63575		BD242BFI
7303	4822 130 40959		BC547B
7304	4822 130 63539		BD241A
7306	4822 130 44568		BC557B
7309	4822 130 63615		BD241BFI
7313	4822 130 41691		BC556B
7315	4822 130 40959		BC547B
7321	4822 209 13158	⚠	STK4221II
7322	4822 130 40959		BC547B
7323	4822 130 44461		BC546B
7324	4822 130 44461		BC546B
7325	4822 130 40959		BC547B
7326	4822 130 40959		BC547B
7329	4822 130 44568		BC557B
7330	4822 130 40959		BC547B
7331	5322 130 44779		BC338-40

NOTE: Only the parts mentioned in this list are normal service parts.

AF3 BOARD

TABLE OF CONTENTS

Brief Introduction of the AF3 Board 12-1
Circuit Diagram 12-2
Component layout 12-3
Chip component layout 12-4
Electrical parts list... 12-5

BRIEF INTRODUCTION OF AF3 BOARD

The AF3 Board consists of the following:

a. SOFAC IC which includes functions such as source selection, loudness control, dynamic bass control, treble control, front/rear volume control and muting function. Sound features such as DBB, DSC, and IS are controllable via I^{2}C data from the microprocessor.
The SOFAC IC caters for 4 input sources namely Tuner, Tape, CD and AUX.

b. Karaoke Mic Mixing
NK: Non-Karaoke
SK: Simple Karaoke which caters for mic. mixing with additional mic. amplifier board.
FK: Full Karaoke with vocal fader and echo effect with additional Karaoke Board.

c. Dolby Pro-Logic interface
It caters for DPL and also DPL with one of the Karaoke functions.

d. Line out provision

e. Sub-woofer output with cinch socket for connection to active sub-woofer speaker.

f. Incredible Surround effect using transistor circuit to create phase shifting and spatial effect.

g. Headphone amplifier using Op-Amp. NJM4456M

h. CD Standby control circuit which switches on the supply to CD Servo control IC, HF circuit and the laser light pen in CD mode only.

i. Headphone Sensing circuit to mute centre and surround channels in DPL application.

j. Attenuation network is provided at the output of the AF3 Board for interfacing with power board of different output power.

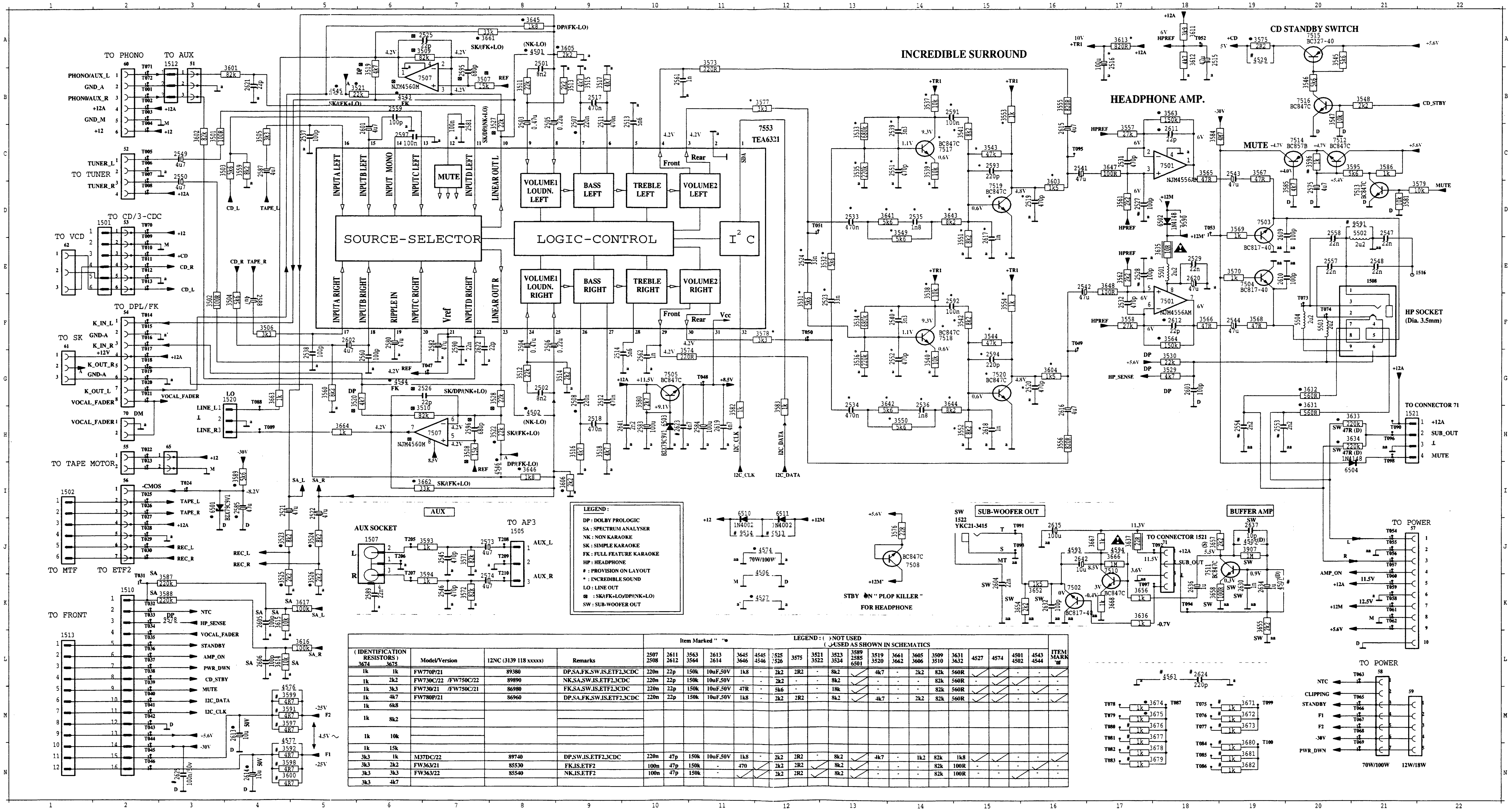
AF3 CIRCUIT

1501	D 2	1522	J15	2513	B10	2524	E12	2536	H14	2547	D21	2560	G 6	2585	I 4
1502	I 1	2501	A 8	2514	G 9	2525	A 7	2537	C 5	2548	E21	2561	B10	2587	C 4
1505	J 8	2502	G 8	2515	A18	2526	G 7	2538	G 5	2549	C 3	2562	G10	2588	F 4
1507	J 6	2503	B 8	2516	A17	2527	D17	2539	C14	2550	C 3	2573	J 7	2589	K 6
1508	E21	2504	F 8	2517	B 9	2528	E17	2540	F14	2551	C14	2574	K 7	2590	F 7
1510	K 2	2505	B 8	2518	H 9	2529	E18	2541	C16	2552	G14	2575	D20	2591	B14
1512	A 3	2506	F 8	2519	D16	2531	C17	2542	E16	2553	H19	2580	F 6	2592	F14
1513	L 1	2507	B 9	2520	G16	2532	F17	2543	C19	2554	H19	2581	C 7	2593	C15
1516	E21	2508	G 9	2521	I 4	2533	D13	2544	F19	2557	E20	2582	F 7	2594	G15
1520	G 4	2511	B 9	2522	I 5	2534	H13	2545	J 7	2558	D20	2583	H10	2595	B 7
1521	H21	2512	G 9	2523	F13	2535	D14	2546	K 7	2559	B 6	2584	H11	2596	H 7

2597	C 6	2613	M 4	2624	L18	3502	F 3	3513	B 9	3524	J 5	3535	C13	3546	B20
2601	C 6	2614	N 4	2625	N 3	3503	C 3	3514	G 9	3525	K 4	3536	G13	3547	B20
2602	F 5	2615	C16	2630	K19	3504	F 4	3515	B 9	3526	K 5	3537	B14	3548	B21
2603	G18	2616	H16	2632	K16	3505	C 4	3516	H 9	3527	B 8	3538	E14	3549	D14
2604	K15	2617	E15	2634	K19	3506	F 4	3517	B 9	3528	G 8	3539	C14	3550	H14
2605	K 4	2618	H15	2635	J16	3507	B 7	3518	H 9	3529	G18	3540	G14	3551	E15
2606	L 4	2619	H11	2636	K18	3508	H 7	3519	B 6	3530	G18	3541	C15	3552	H15
2609	D19	2620	E18	2637	J19	3509	A 7	3520	G 5	3531	F12	3542	F15	3553	B15
2610	E19	2621	B 4	2641	H10	3510	H 7	3521	B 6	3532	E13	3543	C15	3554	F15
2611	C18	2622	F 7	2642	J16	3511	B 8	3522	H 8	3533	C13	3544	F15	3555	B16
2612	F18	2623	H10	3501	C 3	3512	G 8	3523	J 4	3534	F13	3545	A20	3556	H16

3557	C17	3568	F19	3579	D22	3591	M 4	3602	C 3	3617	K 5	3644	G14	3661	A 7
3558	F17	3569	D19	3580	G10	3592	N 4	3603	D16	3631	H20	3645	A 8	3662	I 7
3559	C 4	3570	E19	3581	D21	3593	J 7	3604	G16	3632	G20	3646	I 8	3663	G 4
3560	G 5	3571	J 7	3582	H11	3594	K 7	3605	A 9	3633	H21	3647	C17	3664	H 5
3561	D17	3572	K 7	3583	H12	3595	C21	3606	I 9	3634	H21	3648	E17	3666	J17
3562	E17	3573	A11	3584	C18	3596	C20	3611	A18	3635	E18	3652	K16	3667	J17
3563	B18	3574	G10	3585	D20	3597	M 4	3612	A18	3636	K17	3654	K15	3668	K17
3564	F18	3575	A19	3586	C21	3598	N 4	3613	A17	3637	J17	3655	K19	3671	M19
3565	C18	3576	J14	3587	K 3	3599	M 4	3614	L 4	3641	D14	3656	K17	3672	M19
3566	F18	3577	B12	3588	K 3	3600	N 4	3615	K 4	3642	G14	3657	J18	3673	M19
3567	C19	3578	F12	3589	I 4	3601	B 4	3616	L 5	3643	D14	3658	K18	3674	M18

3675	M18	4505	J19	4576	M 4	5503	F20	6502	D18	7504	E19	7516	B20
3676	M18	4506	K12	4577	N 4	5504	F20	6503	H10	7505	G10	7517	C14
3677	M18	4507	K19	4593	J16	56	I 2	6504	I21	7507	B 6	7518	F14
3678	N18	4527	K12	4594	J17	57	J21	6510	I11	7507	H 7	7519	D15
3679	N18	4529	A19	51	A 3	58	L21	6511	I12	7508	J14	7520	G15
3680	N19	4543	B 6	52	C 2	59	M21	70	H 2	7510	J17	7553	C12
3681	N19	4544	G 6	53	D 2	60	A 2	71	J18	7511	K18	9513	J12
3682	N19	4545	B 5	54	F 2	61	F 1	7501	C18	7512	C20	9514	J11
3907	J19	4546	I 8	55	H 2	62	E 1	7501	F18	7513	D21	9578	K 3
4501	A 8	4563	L18	5501	E18	65	H 3	7502	K16	7514	C20	9590	D18
4502	H 8	4574	J12	5502	D21	6501	I 3	7503	D19	7515	A20	9591	D21



LEGEND :

DP : DOLBY PROLOGIC

SA : SPECTRUM ANALYSER

NK : NON KARAOKE

SK : SIMPLE KARAOKE

FK : FULL FEATURE KARAOKE

HP : HEADPHONE

: PROVISION ON LAYOUT

* : INCREDIBLE SOUND

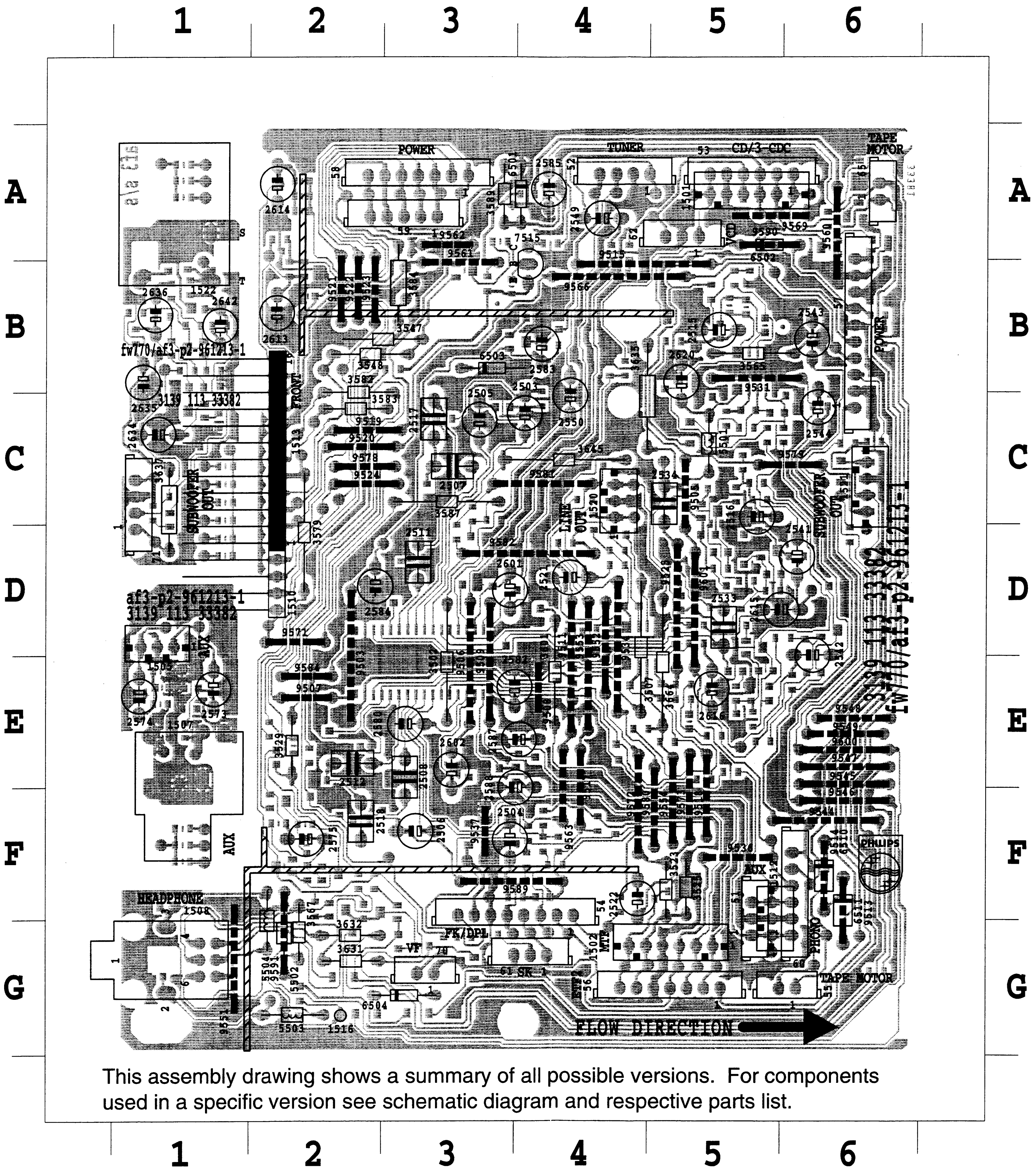
LO : LINE OUT

⊠ : SK/(FK+LO)/DP/(NK+LO)

SW : SUB-WOOFER OUT

(IDENTIFICATION RESISTORS) 3674	3675	Model/Version	12NC (3139 118 xxxxx)	Remarks	Item Marked " "● 2507 2508	2611 2612	3563 3564	2613 2614	3645 3646	4545 4546	LEGEND : ( ) NOT USED (✓) USED AS SHOWN IN SCHEMATICS 2525 2526	3575	3521 3522	3523 3524	3589 2585 6501	3519 3520	3661 3662	3605 3606	3509 3510	3631 3632	4527	4574	4501 4502	4543 4544	ITEM MARK ⊠
1k	1k	FW770P/21	89380	DP,SA,FK,SW,IS,ETF2,3CDC	220n	22p	150k	10uF,50V	1k8	-	2k2	2R2	-	8k2	✓	4k7	-	2k2	82k	560R	✓	✓	-	-	✓
1k	2k2	FW730C/22 /FW750C/22	89890	NK,SA,SW,IS,ETF2,3CDC	220n	22p	150k	10uF,50V	-	-	2k2	-	-	8k2	✓	-	-	-	82k	560R	-	✓	✓	-	-
1k	3k3	FW730/21 /FW750C/21	86980	FK,SA,SW,IS,ETF2,3CDC	220n	22p	150k	10uF,50V	47R	-	5k6	-	-	18k	✓	-	-	-	82k	560R	✓	✓	-	✓	-
1k	4k7	FW780P/21	86960	DP,SA,FK,SW,IS,ETF2,3CDC	220n	22p	150k	10uF,50V	1k8	-	2k2	2R2	-	8k2	✓	4k7	-	2k2	82k	560R	✓	✓	-	-	✓
1k	6k8																								
1k	8k2																								
1k	10k																								
1k	15k																								
3k3	1k	M37DC/22	89740	DP,SW,IS,ETF2,3CDC	220n	47p	150k	10uF,50V	1k8	-	2k2	2R2	-	8k2	✓	4k7	-	1k2	82k	1k8	✓	✓	-	-	✓
3k3	2k2	FW363/21	85530	FK,IS,ETF2	100n	47p	150k	-	470	✓	2k2	2R2	✓	8k2	✓	-	-	-	82k	100R	-	-	-	✓	-
3k3	3k3	FW363/22	85540	NK,IS,ETF2	100n	47p	150k	-	✓	✓	2k2	2R2	✓	8k2	✓	-	-	-	82k	100R	-	-	✓	-	-
3k3	4k7																								

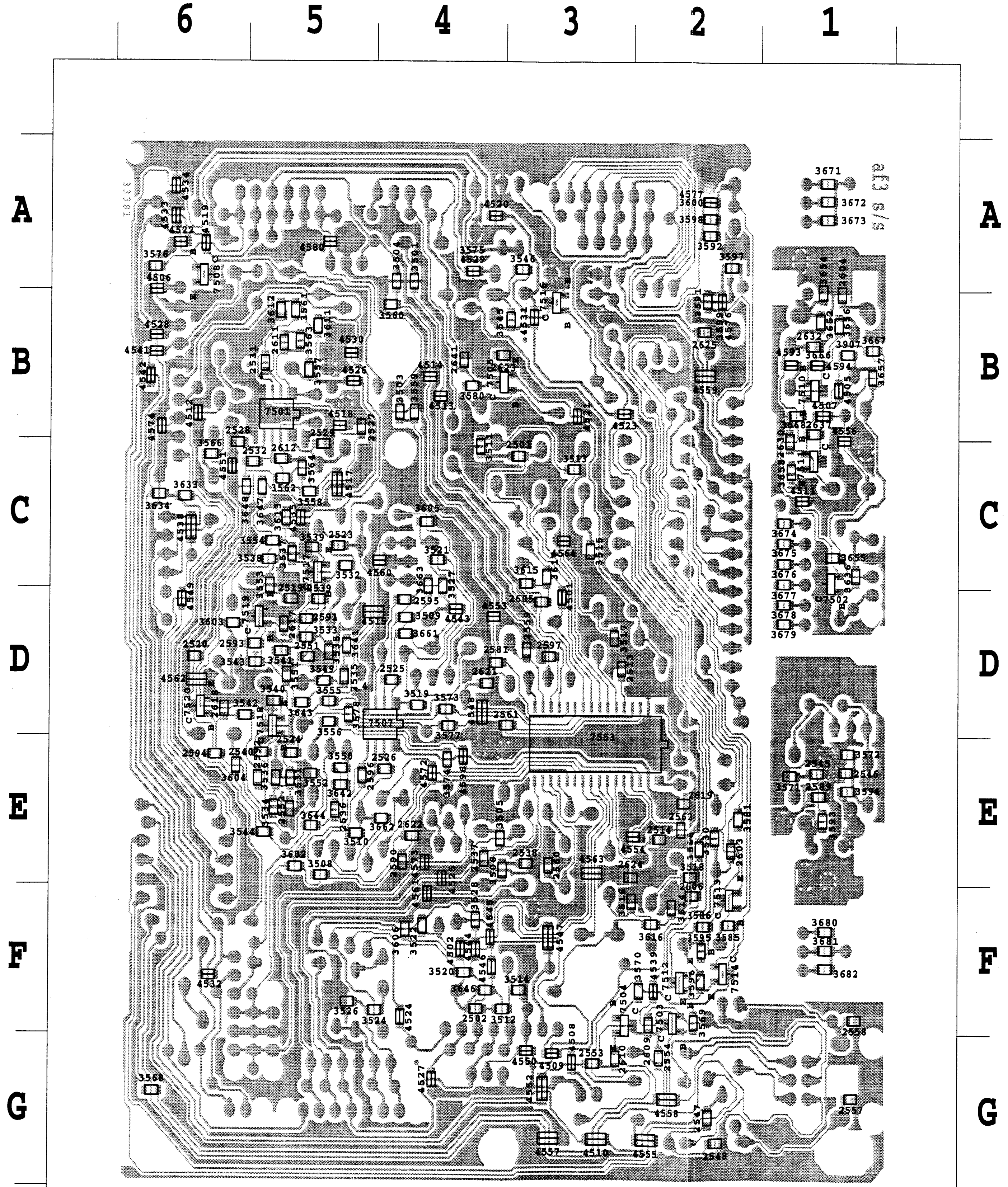
COMPONENT LAYOUT


1
2
3
4
5
6
A
B
C
D
E
F
G
POWER
TUNER
CD/3-CDC
TAPE MOTOR
POWER
FRONT
fw770/af3-p2-961213-1
3139 113 33382
af3-p2-961213-1
3139 113 33382
SUBWOOFER OUT
LINE OUT
SUBWOOFER OUT
AUX
AUX
AUX
HEADPHONE
FK/DPL
VF
SK
MTB
PHONO
TAPE MOTOR
PHILIPS
FLOW DIRECTION

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

51	F	5
52	A	4
53	A	5
54	F	4
55	G	6
56	G	5
57	B	6
58	A	3
59	A	3
60	F	6
61	G	4
62	A	5
65	A	6
70	G	3
71	C	1
1501	A	5
1502	G	5
1505	D	1
1507	E	1
1508	G	1
1510	C	2
1512	F	5
1513	C	2
1516	G	2
1520	C	4
1521	C	6
1522	A	1
2503	C	4
2504	F	3
2505	C	3
2506	F	3
2507	C	3
2508	E	3
2511	D	3
2512	E	2
2515	B	5
2516	C	5
2517	C	3
2518	F	2
2521	D	4
2522	F	4
2533	D	5
2534	C	5
2541	D	6
2542	D	6
2543	B	6
2544	C	6
2549	A	4
2550	C	4
2573	E	1
2574	E	1
2575	F	2
2580	E	3
2582	E	3
2583	B	4
2584	D	2
2585	A	4
2587	E	4
2588	F	4
2601	D	3
2602	E	3
2613	B	2
2614	A	2
2615	D	6
2616	E	5
2620	B	5
2634	C	1
2635	B	1
2636	B	1
2642	B	1
3502	E	3
3507	D	4
3523	F	5
3525	F	5
3529	E	2
3547	B	2
3548	B	2
3565	B	5
3567	G	2
3579	D	2
3582	C	2
3583	C	2
3584	B	3
3587	C	3
3589	A	3
3601	E	4
3631	G	2
3632	G	2
3635	C	4
3637	C	1
3645	C	4
3664	E	5
5501	C	5
5502	G	2
5503	G	2
5504	G	2
6501	A	4
6502	A	5
6503	B	3
6504	G	3
6510	F	6
6511	F	6
7515	B	4
9503	E	2
9505	C	5
9506	E	3
9507	E	2
9508	E	4
9509	E	3
9511	E	4
9513	F	6
9514	F	6
9515	B	4
9517	F	4
9518	F	5
9519	C	2
9520	C	2
9521	B	2
9522	B	2
9523	B	2
9524	C	2
9525	D	5
9531	B	5
9534	D	4
9536	F	5
9537	F	3
9544	F	6
9545	E	6
9546	F	6
9547	E	6
9548	E	6
9549	E	6
9551	G	1
9552	D	4
9553	E	4
9554	F	5
9560	A	6
9561	B	3
9562	A	3
9563	E	4
9566	B	4
9569	A	5
9571	D	2
9572	F	4
9573	F	5
9578	C	2
9579	C	6
9580	F	5
9581	C	4
9582	D	4
9584	E	2
9589	F	3
9590	A	5
9591	G	2
9600	E	6
9601	D	5

CHIP LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2501 C 3	2623 B 4	3559 B 4	3656 B 1
2502 F 4	2624 E 3	3560 B 4	3657 B 1
2513 D 3	2625 B 2	3561 B 5	3658 C 1
2514 E 2	2630 C 1	3562 C 5	3661 D 4
2519 D 5	2632 B 1	3563 B 5	3662 E 4
2520 D 6	2637 B 1	3564 C 5	3663 C 4
2523 C 5	2641 B 4	3566 C 6	3666 B 1
2524 E 5	3501 A 4	3568 G 6	3667 B 1
2525 D 4	3503 B 4	3569 F 2	3668 B 1
2526 E 4	3504 A 4	3570 F 2	3671 A 1
2527 B 5	3505 E 4	3571 E 1	3672 A 1
2528 C 6	3506 E 4	3572 E 1	3673 A 1
2529 C 5	3508 E 5	3573 D 4	3674 C 1
2531 B 5	3509 D 4	3574 E 4	3675 C 1
2532 C 5	3510 E 5	3575 A 4	3676 C 1
2535 D 5	3511 C 4	3576 A 6	3677 C 1
2536 E 5	3512 F 4	3577 D 4	3678 D 1
2537 E 4	3513 C 3	3578 D 5	3679 D 1
2538 E 3	3514 F 3	3580 B 4	3680 F 1
2539 D 5	3515 C 3	3581 E 2	3681 F 1
2540 E 5	3516 F 3	3585 F 2	3682 F 1
2545 E 1	3517 D 3	3586 F 2	3907 B 1
2546 E 1	3518 E 2	3588 E 2	4501 D 3
2547 G 2	3519 D 4	3591 B 2	4502 F 4
2548 G 2	3520 F 4	3592 A 2	4505 B 1
2551 D 5	3521 C 4	3593 E 1	4506 B 6
2552 E 5	3522 F 4	3594 E 1	4507 B 1
2553 G 3	3524 F 4	3595 F 2	4508 G 3
2554 G 2	3526 F 5	3596 F 2	4509 G 3
2557 G 1	3527 C 4	3597 A 2	4510 G 3
2558 F 1	3528 F 4	3598 A 2	4511 C 1
2559 D 3	3530 E 2	3599 B 2	4512 B 6
2560 E 3	3531 E 5	3600 A 2	4513 B 4
2561 D 3	3532 C 5	3602 E 5	4514 B 4
2562 E 2	3533 D 5	3603 D 6	4515 D 5
2581 D 4	3534 E 5	3604 E 6	4517 C 5
2589 E 1	3535 D 5	3605 C 4	4518 B 5
2590 E 4	3536 E 5	3606 F 4	4519 A 6
2591 D 5	3537 C 5	3611 B 5	4520 A 4
2592 E 5	3538 C 5	3612 B 5	4521 B 3
2593 D 5	3539 C 5	3613 C 5	4522 A 6
2594 E 6	3540 D 5	3614 F 2	4523 B 3
2595 D 4	3541 D 5	3615 C 3	4524 F 4
2596 E 5	3542 D 6	3616 F 2	4525 E 4
2597 D 3	3543 D 5	3617 C 3	4526 B 5
2603 E 2	3544 E 5	3633 C 6	4527 G 4
2604 B 1	3545 B 3	3634 C 6	4528 B 6
2605 D 3	3546 A 3	3636 C 1	4529 A 4
2606 F 2	3549 D 5	3641 D 5	4530 B 5
2609 F 2	3550 E 5	3642 E 5	4531 B 3
2610 G 3	3551 D 5	3643 D 5	4532 F 6
2611 B 5	3552 E 5	3644 E 5	4533 A 6
2612 C 5	3553 C 5	3646 F 4	4534 A 6
2617 D 5	3554 C 5	3647 C 5	4535 C 5
2618 D 6	3555 D 5	3648 C 6	4538 C 6
2619 E 2	3556 D 5	3652 B 1	4539 F 2
2621 D 4	3557 B 5	3654 B 1	4541 B 6
2622 E 4	3558 C 5	3655 C 1	4542 B 6

ELECTRICAL PARTS LIST - AF3 BOARD

MISCELLANEOUS

1507	4822 265 20553	AUX Socket
1508	4822 267 40898	Headphone Socket
1510	4822 265 41325	16 Pin Connector
1522	4822 267 31729	Sub-woofer Socket

CAPACITORS

2501	4822 122 33336	8,2nF 10% 50V
2502	4822 122 33336	8,2nF 10% 50V
2503	4822 124 41407	0,47µF 20% 63V
2504	4822 124 41407	0,47µF 20% 63V
2505	4822 124 40746	0,22µF 20% 63V
2506	4822 124 40746	0,22µF 20% 63V
2507	4822 121 42408	220nF 5% 63V
2508	4822 121 42408	220nF 5% 63V
2511	4822 121 51252	470nF 5% 63V
2512	4822 121 51252	470nF 5% 63V
2513	4822 122 32646	5,6nF 10% 50V
2514	4822 122 32646	5,6nF 10% 50V
2515	4822 124 40433	47µF 20% 25V
2516	4822 124 81029	100µF 20% 25V
2517	4822 121 51252	470nF 5% 63V
2518	4822 121 51252	470nF 5% 63V
2519	5322 122 32268	470pF 10% 50V
2520	5322 122 32268	470pF 10% 50V
2521	4822 124 41751	47µF 20% 50V
2522	4822 124 41751	47µF 20% 50V
2523	4822 122 33342	33nF 10% 63V
2524	4822 122 33342	33nF 10% 63V
2525	5322 122 32658	22pF 5% 50V /21/21M
2526	5322 122 32658	22pF 5% 50V /21/21M
2529	5322 122 32654	22nF 10% 63V
2531	5322 122 32268	470pF 10% 50V
2532	5322 122 32268	470pF 10% 50V
2533	4822 121 51252	470nF 5% 63V
2534	4822 121 51252	470nF 5% 63V
2535	4822 122 33219	1,8nF 10% 50V
2536	4822 122 33219	1,8nF 10% 50V
2537	5322 122 32531	100pF 5% 50V
2538	5322 122 32531	100pF 5% 50V
2539	4822 122 33891	3,3nF 10% 63V
2540	4822 122 33891	3,3nF 10% 63V
2541	4822 124 41751	47µF 20% 50V
2542	4822 124 41751	47µF 20% 50V
2543	4822 124 41751	47µF 20% 50V
2544	4822 124 41751	47µF 20% 50V
2545	5322 122 32268	470pF 10% 50V
2546	5322 122 34099	470pF 10% 63V
2547	5322 122 32654	22nF 10% 63V
2549	4822 124 40246	4,7µF 20% 63V
2550	4822 124 40246	4,7µF 20% 63V
2551	5322 122 32268	470pF 10% 50V
2552	5322 122 32268	470pF 10% 50V
2557	5322 122 32654	22nF 10% 63V
2558	5322 122 32654	22nF 10% 63V
2559	5322 122 32531	100pF 5% 50V
2560	5322 122 32531	100pF 5% 50V
2561	5322 122 34123	1nF 10% 50V
2562	5322 122 34123	1nF 10% 50V
2573	4822 124 40246	4,7µF 20% 63V
2574	4822 124 40246	4,7µF 20% 63V
2575	4822 124 40246	4,7µF 20% 63V
2580	4822 124 41751	47µF 20% 50V
2581	4822 126 13838	100nF +80/-20% 50V
2582	4822 124 41751	47µF 20% 50V
2583	4822 124 81029	100µF 20% 25V
2584	4822 124 81029	100µF 20% 25V
2585	4822 124 41751	47µF 20% 50V
2587	4822 124 40246	4,7µF 20% 63V
2588	4822 124 40246	4,7µF 20% 63V
2589	5322 122 32654	22nF 10% 63V
2590	5322 122 32654	22nF 10% 63V
2591	4822 126 13838	100nF +80/-20% 50V
2592	4822 126 13838	100nF +80/-20% 50V
2593	4822 122 33575	220pF 5% 50V
2594	4822 122 33575	220pF 5% 50V
2595	4822 122 32535	680pF 10% 63V /21/21M
2596	4822 122 32535	680pF 10% 63V /21/21M
2597	4822 126 13838	100nF +80/-20% 50V
2601	4822 124 40246	4,7µF 20% 63V
2602	4822 124 40246	4,7µF 20% 63V
2603	5322 122 32531	100pF 5% 50V
2604	5322 122 32654	22nF 10% 63V
2605	5322 122 32531	100pF 5% 50V
2606	5322 122 32531	100pF 5% 50V
2609	5322 122 32531	100pF 5% 50V
2610	5322 122 32531	100pF 5% 50V
2611	5322 122 32658	22pF 5% 50V
2612	5322 122 32658	22pF 5% 50V
2613	4822 124 41579	10µF 20% 50V
2614	4822 124 41579	10µF 20% 50V
2615	4822 124 40246	4,7µF 20% 63V
2616	4822 124 40246	4,7µF 20% 63V
2617	5322 122 34123	1nF 10% 50V
2618	5322 122 34123	1nF 10% 50V
2620	4822 124 40433	47µF 20% 25V
2621	5322 122 32658	22pF 5% 50V
2622	5322 122 32658	22pF 5% 50V
2623	5322 126 10223	4,7nF 10% 63V
2630	5322 122 34123	1nF 10% 50V
2632	5322 122 32531	100pF 5% 50V
2634	4822 124 40242	1µF 20% 63V
2635	4822 124 81029	100µF 20% 25V
2636	4822 124 40242	1µF 20% 63V
2637	5322 122 32448	10pF 5% 50V

ELECTRICAL PARTS LIST - AF3 BOARD

2641	4822 122 33175	2,2nF 20% 50V	
2642	4822 124 41579	10µF 20% 50V	

RESISTORS

3501	4822 051 20101	100R 5% 0,1W	
3502	4822 116 52175	100R 5% 0,5W	
3503	4822 051 20562	5k6 5% 0,1W	
3504	4822 051 20562	5k6 5% 0,1W	
3505	4822 051 20332	3k3 5% 0,1W	
3506	4822 051 20332	3k3 5% 0,1W	
3507	4822 116 52244	15k 5% 0,5W	/21/21M
3508	4822 051 20153	15k 5% 0,1W	/21/21M
3509	4822 117 11149	82k 1% 0,1W	/21/21M
3510	4822 117 11149	82k 1% 0,1W	/21/21M
3511	4822 051 20223	22k 5% 0,1W	
3512	4822 051 20223	22k 5% 0,1W	
3513	4822 117 11449	2k2 1% 0,1W	
3514	4822 117 11449	2k2 1% 0,1W	
3515	4822 051 20472	4k7 5% 0,1W	
3516	4822 051 20472	4k7 5% 0,1W	
3517	4822 051 20472	4k7 5% 0,1W	
3518	4822 051 20472	4k7 5% 0,1W	
3523	4822 116 52303	8k2 5% 0,5W	
3523	4822 116 52251	18k 5% 0,5W	/21/21M
3524	4822 051 20822	8k2 5% 0,1W	
3524	4822 051 20183	18k 5% 0,1W	/21/21M
3525	4822 116 52256	2k2 5% 0,5W	
3525	4822 116 52289	5k6 5% 0,5W	/21/21M
3526	4822 117 11449	2k2 1% 0,1W	
3526	4822 051 20562	5k6 5% 0,1W	/21/21M
3527	4822 051 20223	22k 5% 0,1W	/21/21M
3528	4822 051 20223	22k 5% 0,1W	/21/21M
3529	4822 116 52283	4k7 5% 0,5W	
3530	4822 051 20223	22k 5% 0,1W	
3531	4822 051 20562	5k6 5% 0,1W	
3532	4822 051 20562	5k6 5% 0,1W	
3533	4822 051 20684	680k 5% 0,1W	
3534	4822 051 20684	680k 5% 0,1W	
3535	4822 051 20224	220k 5% 0,1W	
3536	4822 051 20224	220k 5% 0,1W	
3537	4822 117 10833	10k 1% 0,1W	
3538	4822 117 10833	10k 1% 0,1W	
3539	4822 117 10833	10k 1% 0,1W	
3540	4822 117 10833	10k 1% 0,1W	
3541	4822 051 20822	8k2 5% 0,1W	
3542	4822 051 20822	8k2 5% 0,1W	
3543	4822 051 20473	47k 5% 0,1W	
3544	4822 051 20473	47k 5% 0,1W	
3545	4822 051 20562	5k6 5% 0,1W	
3546	4822 051 20562	5k6 5% 0,1W	
3547	4822 116 83864	10k 5% 0,5W	
3548	4822 116 52256	2k2 5% 0,5W	
3549	4822 051 20562	5k6 5% 0,1W	
3550	4822 051 20562	5k6 5% 0,1W	
3551	4822 051 20822	8k2 5% 0,1W	
3552	4822 051 20822	8k2 5% 0,1W	
3553	4822 051 10102	1k 2% 0,25W	
3554	4822 051 10102	1k 2% 0,25W	
3555	4822 051 20821	820R 5% 0,1W	
3556	4822 051 20821	820R 5% 0,1W	
3557	4822 051 20273	27k 5% 0,1W	
3558	4822 051 20273	27k 5% 0,1W	
3559	4822 051 20822	8k2 5% 0,1W	
3560	4822 051 20822	8k2 5% 0,1W	
3561	4822 117 11449	2k2 1% 0,1W	
3562	4822 117 11449	2k2 1% 0,1W	
3563	4822 051 20154	150k 5% 0,1W	
3564	4822 051 20154	150k 5% 0,1W	
3565	4822 116 52195	47R 5% 0,5W	
3566	4822 051 20479	47R 5% 0,1W	
3567	4822 116 52195	47R 5% 0,5W	
3568	4822 051 20479	47R 5% 0,1W	
3569	4822 051 10102	1k 2% 0,25W	
3570	4822 051 10102	1k 2% 0,25W	
3571	4822 117 11149	82k 1% 0,1W	
3572	4822 117 11149	82k 1% 0,1W	
3573	4822 117 11503	220R 1% 0.1W	
3574	4822 117 11503	220R 1% 0.1W	
3575	4822 051 20228	2R2 5% 0,1W	
3577	4822 051 20332	3k3 5% 0,1W	
3578	4822 051 20332	3k3 5% 0,1W	
3579	4822 116 83864	10k 5% 0,5W	
3580	4822 051 20272	2k7 5% 0,1W	
3581	4822 117 10833	10k 1% 0,1W	
3582	4822 050 11002	1k 1% 0,4W	
3583	4822 050 11002	1k 1% 0,4W	
3584	4822 050 24705	4M7 1% 0,6W	
3585	4822 051 20472	4k7 5% 0,1W	
3586	4822 051 10102	1k 2% 0,25W	
3587	4822 116 83874	220k 5% 0,5W	
3588	4822 051 20224	220k 5% 0,1W	
3589	4822 116 52289	5k6 5% 0,5W	
3593	4822 051 10102	1k 2% 0,25W	
3594	4822 051 10102	1k 2% 0,25W	
3595	4822 051 20562	5k6 5% 0,1W	
3601	4822 116 52304	82k 5% 0,5W	
3602	4822 117 11149	82k 1% 0,1W	
3603	4822 117 11139	1k5 1% 0,1W	
3604	4822 117 11139	1k5 1% 0,1W	
3611	4822 051 20392	3k9 5% 0,1W	
3612	4822 051 20472	4k7 5% 0,1W	
3613	4822 051 20821	820R 5% 0,1W	
3614	4822 117 10833	10k 1% 0,1W	
3615	4822 117 10833	10k 1% 0,1W	

ELECTRICAL PARTS LIST - AF3 BOARD

RESISTORS

3616	4822 051 20104	100k 5% 0,1W
3617	4822 051 20104	100k 5% 0,1W
3631	4822 116 52226	560R 5% 0,5W
3632	4822 116 52226	560R 5% 0,5W
3633	4822 051 20224	220k 5% 0,1W
3634	4822 051 20224	220k 5% 0,1W
3635	4822 052 10109	⚠ 10R 5% 0,33W
3636	4822 051 10102	1k 2% 0,25W
3637	4822 052 10229	⚠ 22R 5% 0,33W
3641	4822 051 20562	5k6 5% 0,1W
3642	4822 051 20562	5k6 5% 0,1W
3643	4822 051 20822	8k2 5% 0,1W
3644	4822 051 20822	8k2 5% 0,1W
3645	4822 051 20479	47R 5% 0,1W /21/21M
3646	4822 051 20479	47R 5% 0,1W /21/21M
3647	4822 051 20101	100R 5% 0,1W
3648	4822 051 20101	100R 5% 0,1W
3652	4822 117 11139	1k5 1% 0,1W
3654	4822 117 11449	2k2 1% 0,1W
3655	4822 117 11449	2k2 1% 0,1W
3656	4822 051 10102	1k 2% 0,25W
3657	4822 117 11449	2k2 1% 0,1W
3658	4822 051 20101	100R 5% 0,1W
3663	4822 051 10102	1k 2% 0,25W /21/21M
3664	4822 050 11002	1k 1% 0,4W /21/21M
3666	4822 051 20105	1M 5% 0,1W
3667	4822 051 10102	1k 2% 0,25W
3668	4822 051 10102	1k 2% 0,25W
3674	4822 051 10102	1k 2% 0,25W
3675	4822 051 20332	3k3 5% 0,1W /21/21M
3675	4822 117 11449	2k2 1% 0,1W
3907	4822 051 20105	1M 5% 0,1W
4501	4822 051 20008	Chip Jumper 0805
4502	4822 051 20008	Chip Jumper 0805
4506	4822 051 20008	Chip Jumper 0805
4508	4822 051 20008	Chip Jumper 0805
4509	4822 051 20008	Chip Jumper 0805
4510	4822 051 10008	Chip Jumper 1206
4511	4822 051 20008	Chip Jumper 0805
4512	4822 051 20008	Chip Jumper 0805
4513	4822 051 20008	Chip Jumper 0805
4514	4822 051 20008	Chip Jumper 0805
4515	4822 051 10008	Chip Jumper 1206
4517	4822 051 10008	Chip Jumper 1206
4518	4822 051 20008	Chip Jumper 0805
4519	4822 051 20008	Chip Jumper 0805
4520	4822 051 20008	Chip Jumper 0805
4521	4822 051 20008	Chip Jumper 0805
4522	4822 051 20008	Chip Jumper 0805
4523	4822 051 20008	Chip Jumper 0805
4524	4822 051 20008	Chip Jumper 0805
4525	4822 051 20008	Chip Jumper 0805
4526	4822 051 20008	Chip Jumper 0805
4527	4822 051 20008	Chip Jumper 0805 /21/21M
4528	4822 051 20008	Chip Jumper 0805
4530	4822 051 20008	Chip Jumper 0805
4531	4822 051 20008	Chip Jumper 0805
4532	4822 051 20008	Chip Jumper 0805
4533	4822 051 20008	Chip Jumper 0805
4534	4822 051 20008	Chip Jumper 0805
4535	4822 051 20008	Chip Jumper 0805
4538	4822 051 10008	Chip Jumper 1206
4539	4822 051 20008	Chip Jumper 0805
4541	4822 051 20008	Chip Jumper 0805
4542	4822 051 20008	Chip Jumper 0805
4543	4822 051 20008	Chip Jumper 0805 /21/21M
4544	4822 051 20008	Chip Jumper 0805 /21/21M
4547	4822 051 10008	Chip Jumper 1206
4548	4822 051 10008	Chip Jumper 1206
4549	4822 051 20008	Chip Jumper 0805
4550	4822 051 20008	Chip Jumper 0805
4551	4822 051 20008	Chip Jumper 0805
4552	4822 051 10008	Chip Jumper 1206
4553	4822 051 20008	Chip Jumper 0805
4554	4822 051 20008	Chip Jumper 0805
4555	4822 051 10008	Chip Jumper 1206
4556	4822 051 20008	Chip Jumper 0805
4557	4822 051 10008	Chip Jumper 1206
4558	4822 051 10008	Chip Jumper 1206
4559	4822 051 10008	Chip Jumper 1206
4560	4822 051 20008	Chip Jumper 0805 /21/21M
4561	4822 051 20008	Chip Jumper 0805
4562	4822 051 10008	Chip Jumper 1206
4564	4822 051 20008	Chip Jumper 0805
4572	4822 051 20008	Chip Jumper 0805
4573	4822 051 20008	Chip Jumper 0805
4574	4822 051 20008	Chip Jumper 0805
4576	4822 051 20008	Chip Jumper 0805
4577	4822 051 20008	Chip Jumper 0805
4580	4822 051 20008	Chip Jumper 0805
4596	4822 051 20008	Chip Jumper 0805

COILS

5501	4822 156 21721	Inductor 2,2µH 10%
5502	4822 156 21721	Inductor 2,2µH 10%
5503	4822 156 21721	Inductor 2,2µH 10%
5504	4822 156 21721	Inductor 2,2µH 10%

DIODES

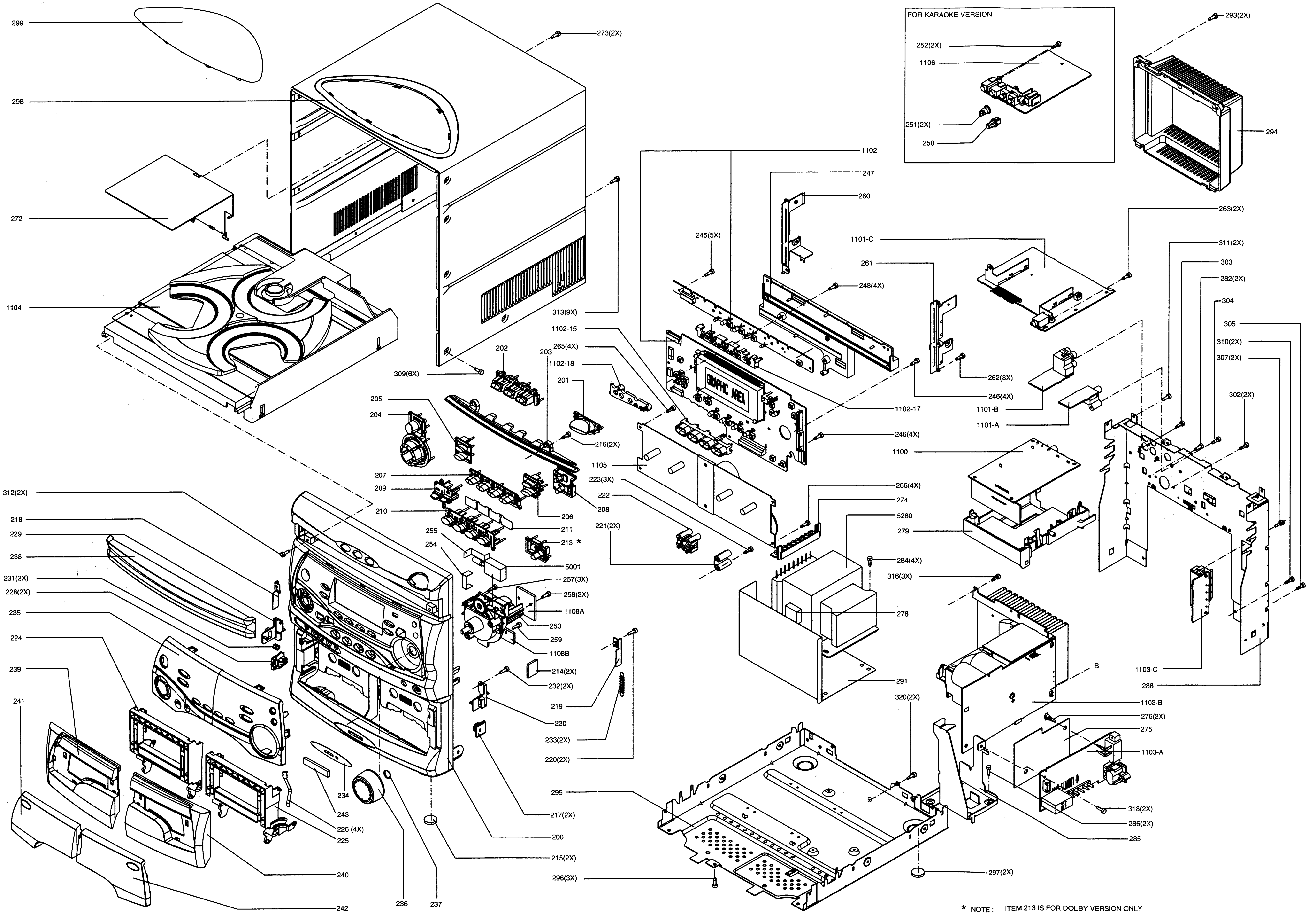
6501	4822 130 30862	BZX79-C9V1
6503	4822 130 30862	BZX79-C9V1
6504	4822 130 30621	1N4148
6510	5322 130 30684	1N4002
6511	5322 130 30684	1N4002

ELECTRICAL PARTS LIST - AF3 BOARD

TRANSISTORS & INTEGRATED CIRCUITS

7501	4822 209 31378	NJM4556AM
7502	4822 130 42615	BC817-40
7503	4822 130 42615	BC817-40
7504	4822 130 42615	BC817-40
7505	5322 130 42755	BC847C
7507	4822 209 83357	NJM4560M /21/21M
7510	5322 130 42755	BC847C
7511	5322 130 42755	BC847C
7512	5322 130 42755	BC847C
7513	5322 130 42755	BC847C
7514	5322 130 60508	BC857B
7515	4822 130 41327	BC327-40
7516	5322 130 42755	BC847C
7517	5322 130 42755	BC847C
7518	5322 130 42755	BC847C
7519	5322 130 42755	BC847C
7520	5322 130 42755	BC847C
7553	4822 209 33652	TEA6321T

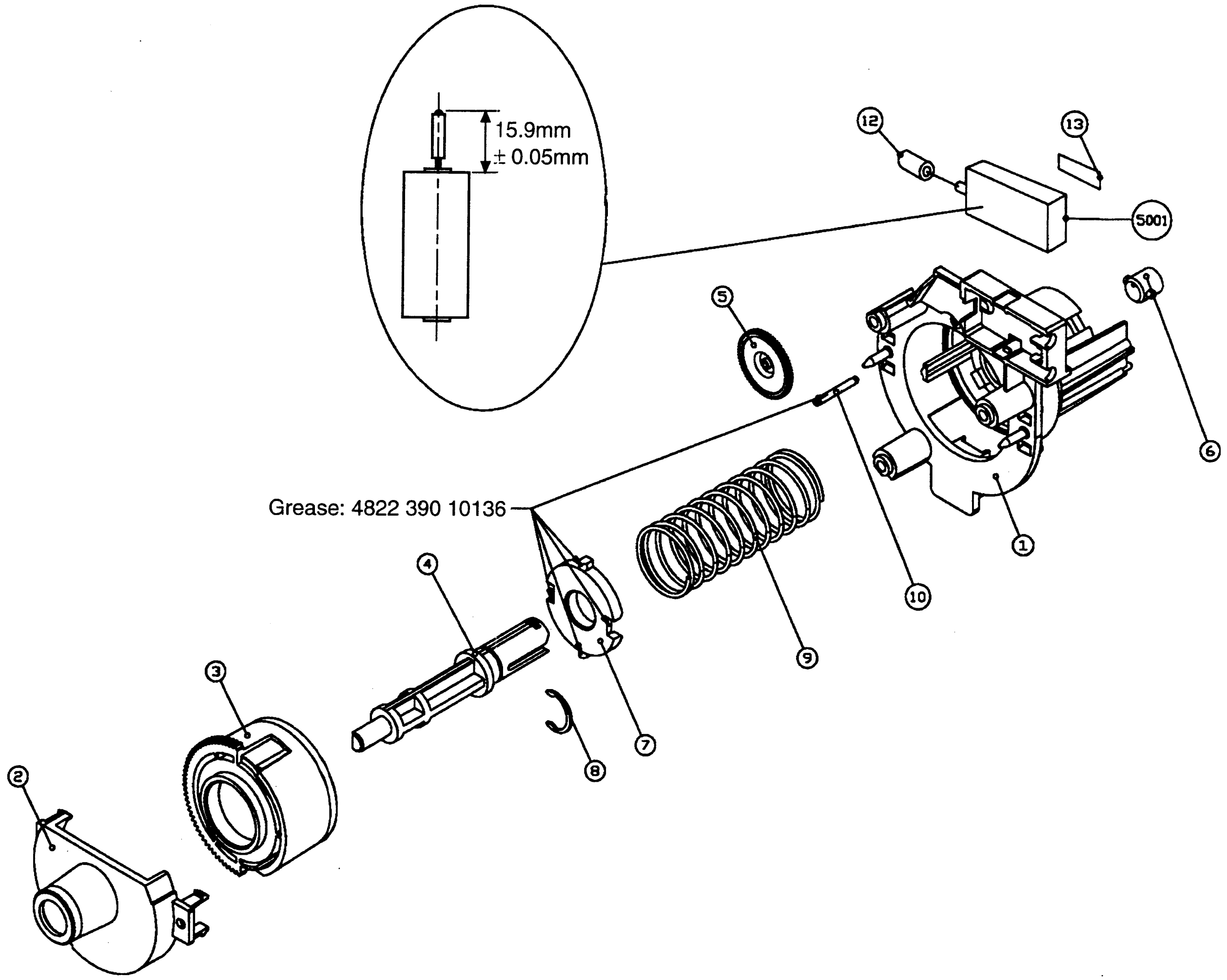
NOTE: Only the parts mentioned in this list are normal service spare parts.


299
298
272
1104
273(2X)
313(9X)
309(6X)
202
203
1102-15
265(4X)
1102-18
201
205
204
216(2X)
207
209
206
208
210
211
213 *
255
254
5001
257(3X)
258(2X)
1108A
253
259
1108B
214(2X)
232(2X)
219
230
233(2X)
220(2X)
217(2X)
200
215(2X)
312(2X)
218
229
238
231(2X)
228(2X)
235
224
239
241
226 (4X)
225
243
234
240
236
237
242
FOR KARAOKE VERSION
252(2X)
1106
251(2X)
250
293(2X)
294
1102
247
260
245(5X)
248(4X)
1101-C
261
262(8X)
246(4X)
1102-17
246(4X)
1101-B
1101-A
263(2X)
311(2X)
303
282(2X)
304
305
310(2X)
307(2X)
302(2X)
1100
1105
223(3X)
222
221(2X)
266(4X)
274
5280
279
284(4X)
316(3X)
278
291
B
1103-C
288
1103-B
320(2X)
276(2X)
275
1103-A
B
295
318(2X)
286(2X)
285
296(3X)
297(2X)
GRAPHIC AREA

* NOTE : ITEM 213 IS FOR DOLBY VERSION ONLY

EXPLODED VIEW - HVC UNIT (POS. 253)

(For HVC control sets only)



MECHANICAL PARTS - HVC UNIT

2	4822 528 11078	Hub, HVC
3	4822 528 11067	Cam, HVC
4	4822 535 10447	Shaft, HVC
5	4822 522 10594	Gearwheel, HVC
6	4822 463 11121	Slider, HVC
9	4822 492 11346	Spring Compression
12	4822 535 10451	Worm
5001	4822 361 10942	Slede Motor, HVC

NOTE: Only the parts mentioned in this list are normal service spare parts.

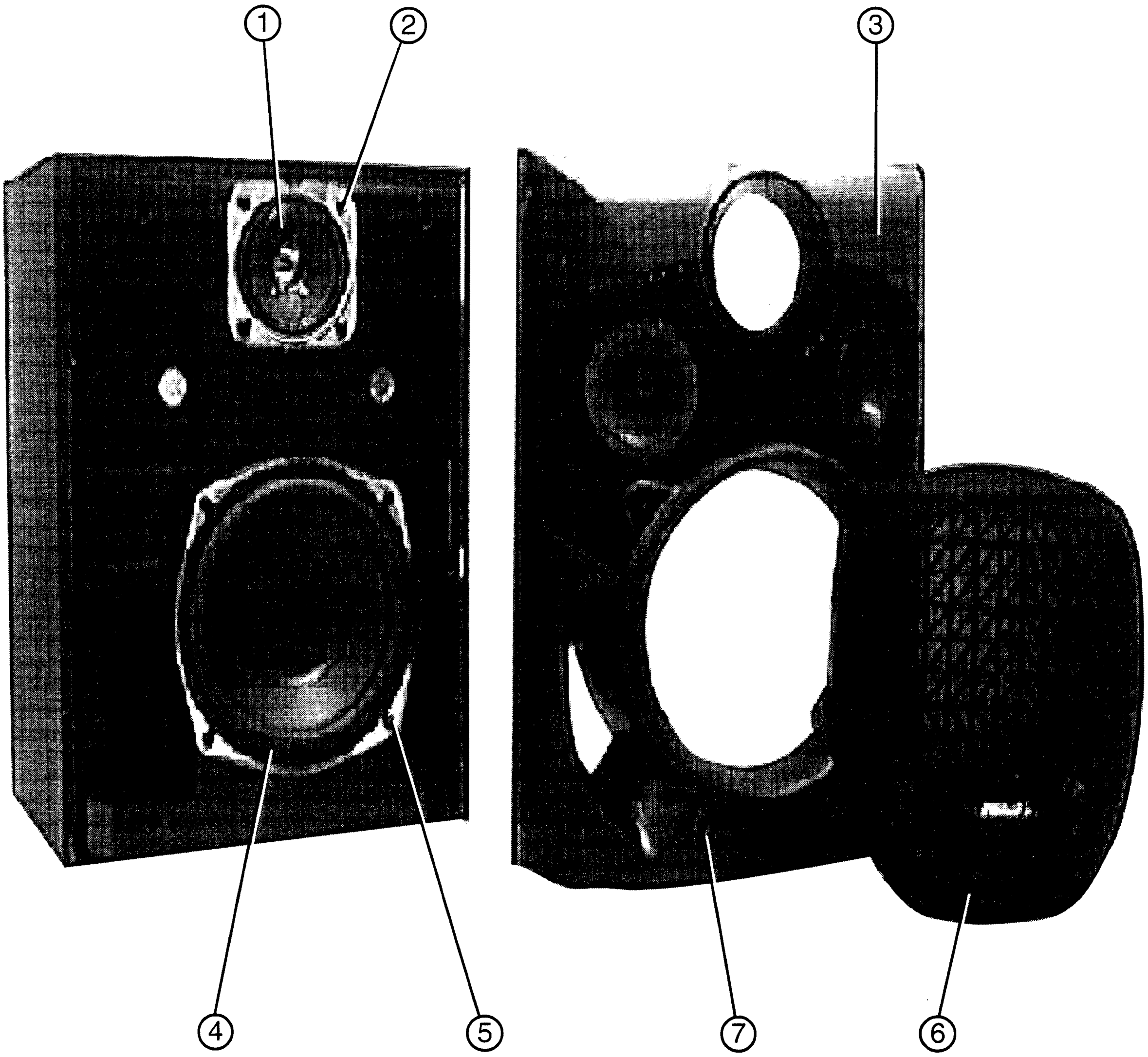
MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

200	4822 459 04471	Cabinet Front /21S/41S
200	4822 459 04539	Cabinet Front /37
200	4822 449 80146	Cabinet Front /30s
200	4822 459 04558	Cabinet Front /22S/34S
200	4822 459 04561	Cabinet Front /22
201	4822 410 11003	Button Open/Close
201	4822 410 11062	Button Open/Close /..S
202	4822 410 10878	Button Set CDC
203	4822 466 11392	Light Guide CDC
204	4822 410 11025	Button Set Power/DSC
205	4822 410 10881	Button Set Display Left
206	4822 410 10882	Button Set Display Right
207	4822 410 10883	Button Set Display Center
208	4822 410 10884	Button Set Clock/Demo
209	4822 410 10885	Button Set DBB/IS
210	4822 410 10886	Button Set Mode
213	4822 410 11001	Button Dolby /22/22S/25/34S
215	4822 462 40683	Plate (Foot)
217	4822 529 10322	Damper Assembly
224	4822 443 10487	Door Cassette Left
225	4822 443 10488	Door Cassette Right
226	4822 492 42787	Spring Cassette
228	4822 402 10621	Push-Catch
231	4822 492 11344	Spring Compression
233	4822 492 11345	Spring Tension
235	4822 450 10282	Window Display /21S/30S/41S
235	4822 450 10307	Window Display /37
235	4822 450 10316	Window Display RDS /22/22S/25
235	4822 450 10328	Window Display RDS/HVC /34S
236	4822 410 11002	Knob Volume
236	4822 410 10888	Knob Volume /21S/34S/41S
237	4822 492 51374	Ring
238	4822 442 00667	Cover Door CDC
238	4822 443 10554	Cover Door CDC /..S
239	4822 442 00773	Cover Door Cassette Left
239	4822 442 00845	Cover Door Cassette Left /..S
240	4822 442 00872	Cover Door Cassette Right
240	4822 442 00774	Cover Door Cassette Right /..S
241	4822 450 10283	Window Cassette Left
242	4822 450 10284	Window Cassette Right
243	4822 459 11055	Badge, Philips
243	4822 454 13206	Badge, Philips Magnavox
250	4822 410 10889	Knob Vocal Cancel /21S/41S
251	4822 410 10533	Knob Karaoke /21S/41S
254	4822 402 61558	Clamping Bracket /21S/34S/41S
255	4822 492 11347	Pivot Spring /21S/34S/41S
276	4822 466 93148	Spacer 5mm
294	4822 442 00576	Cover Rucksack
297	4822 462 40683	Plate (Foot)
298	4822 426 10069	Cabinet Rear
298	4822 426 10371	Cabinet Rear /..S
299	4822 450 10291	Window CDC
299	4822 450 10226	Window CDC /22/22S/25/34S
5280	4822 146 10633	Mains Transformer /21S/41S
5280	4822 146 10778	Mains Transformer /37
5280	4822 146 10783	Mains Transformer /30S/34S
5280	4822 146 10787	Mains Transformer /22/22S/25
	4822 445 10602	Loudspeaker Box /..S
	4822 445 10641	Loudspeaker Box /37
	4822 445 10646	Loudspeaker Box /22/25
	4822 303 50063	FM Aerial
	4822 320 11094	FM Antenna Wire /37
	4822 263 21071	Adaptor Fem/Fem /25
	4822 219 10181	Remote Control RC0781/01
	4822 219 10197	Remote Control RC0781/04 /37
	4822 303 50082	AM Frame Aerial
	4822 321 10249	Mains Cord IEC
	4822 321 10883	Mains Cord /37
	4822 321 10954	Mains Cord /30S
	4822 321 10886	Main Cord UK /25
	4822 736 14999	Instruction For Use /21S/30S/41S
	4822 736 15197	Instruction For Use /37
	4822 736 15254	Instruction For Use /22/22S/25
	4822 736 15292	Instruction For Use /34S

NOTE: Only the parts mentioned in this list are normal service spare parts.

SCREW LISTS - MAIN UNIT

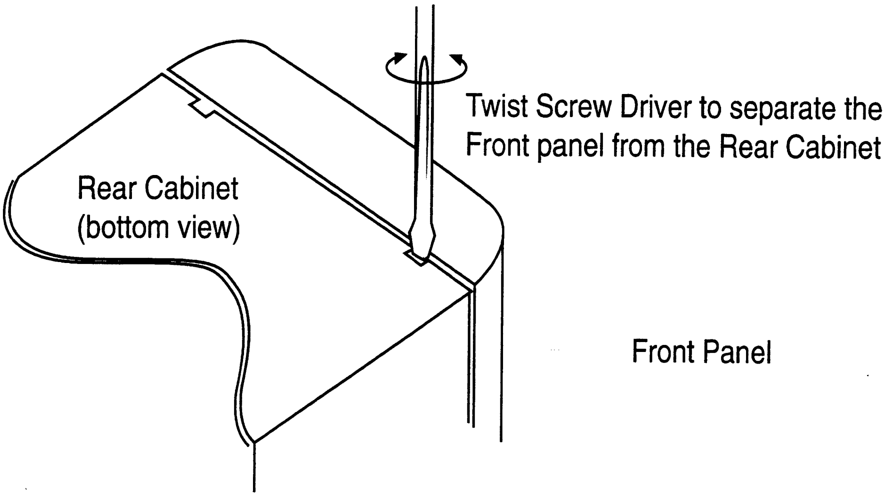
216	D3 x 10
220	D3 x 10
223	D3 x 30
232	D3 x 10
245	D3 x 12
246	D3 x 12
248	D3 x 12
252	D3 x 12
257	D3 x 12
258	D3 x 10
259	D3 x 10
262	D3 x 12
263	D3 x 12
265	D3 x 12
266	D3 x 30
273	M3 x 10
282	D3x12
284	M3 x 6
286	M3 x 6
293	M3 x 6
296	M3x10
302	D3x12
303	D3x12
304	D3x12
305	D3 x 12
307	D3 x 12
309	D3 x 10
310	M3 x 6
311	D3 x 10
312	D3 x 10
313	M3 x 10
316	M3 x 6
318	M3 x 6
320	M3 x 6



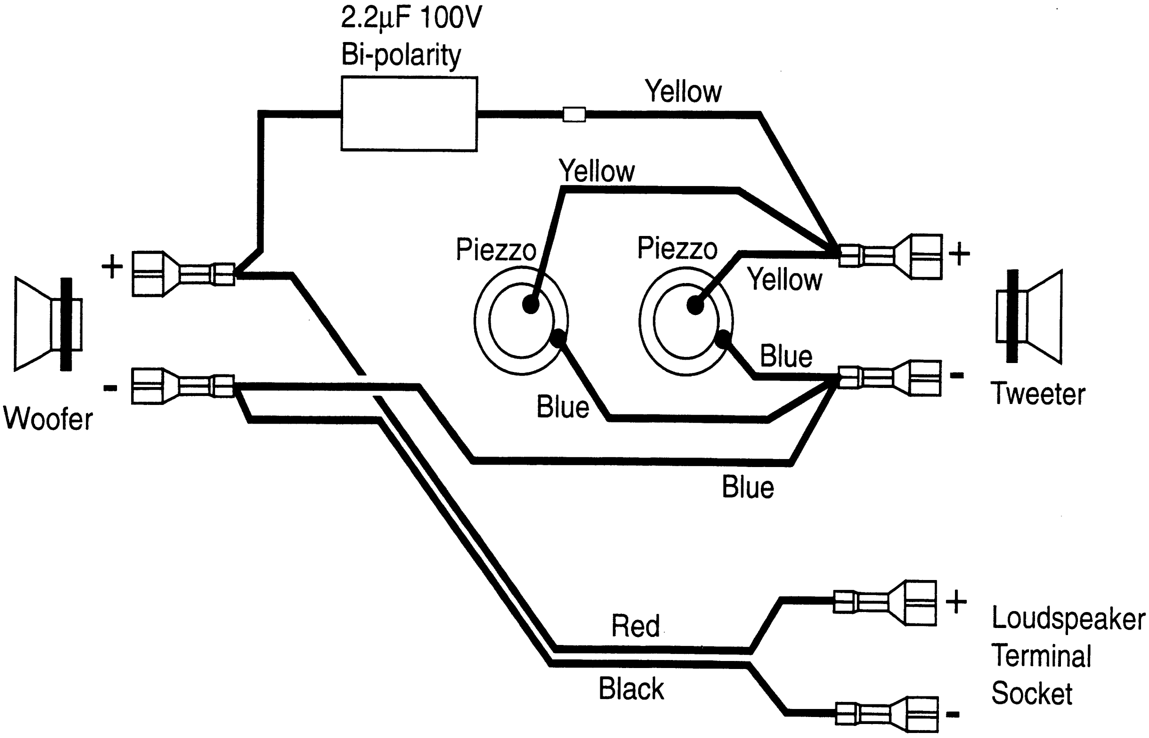
1	4822 240 10218	Tweeter 2.5"
2	-	Screw D4 x 16
3	4822 459 04575	Front Panel Assembly - Silver
3	4822 459 04574	Front Panel Assembly - Black
4	4822 240 10219	Woofer 5.25"
5	-	Screw D4 x 16
6	4822 464 10308	Cloth Frame Assembly - Philips
6	4822 464 10312	Cloth Frame Assembly - Ph Mgx
7	4822 325 50229	Grommet
	4822 445 10602	Loudspeaker Box (Ph) - Silver
	4822 445 10641	Loudspeaker Box (Ph-Mgx) - Black
	4822 445 10646	Loudspeaker Box (Ph) - Black

Note: Only the parts mentioned are normal service spare parts.

Loudspeaker Box bottom view


Twist Screw Driver to separate the Front panel from the Rear Cabinet
Rear Cabinet (bottom view)
Front Panel

Loudspeaker Wiring Diagram


2.2µF 100V
Bi-polarity
Yellow
Yellow
Piezzo
Piezzo
Yellow
Blue
Blue
Blue
+
-
Woofer
+
-
Tweeter
Red
Black
+
-
Loudspeaker Terminal Socket

FW745C/FW750C

A97 - 165

Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Informations:

CORRECTIONS TO SERVICE MANUAL

* **MAIN UNIT** mechanical parts list should be:

200	4822 459 04755	Front Cabinet /34S/34X
235	4822 450 10307	Window Display /30S
299	4822 450 10226	Window CDC - all versions

* **FRONT BOARD** (HVC & Non-HVC) parts list should be:

1444	4822 276 13114	Tact Switch (Dolby)

CHANGES DURING PRODUCTION

FRONT BOARD (HVC/Non-HVC)

* From production week 9722 onwards layout stage .3 (identified by the last digit of the 12-digit code printed on the copper pattern) is implemented. New drawings are enclosed.

Reason: Addition of muting circuits to the line-out

Add	3653	4822 117 11449	2k2 1% 0,1W
	3654	4822 117 11449	2k2 1% 0,1W
	4593	4822 051 20008	Jumper 0R 0805
	7446	4822 130 42616	BC818-40
	7447	4822 130 42616	BC818-40

* From production week 9740 onwards the µProcessor IC 7441 is change to masked 3A to improve the HVC detection zone - except /22../25.. versions. The new IC is

7441	4822 209 15908	TMP78CS71AF - 770S51561

AF3 BOARD

* From production week 9708 onwards Line-out feature is added.

Add	2525-2526	5322 122 32658	22pF 5% 50V
	2595-2596	4822 122 32535	680pF 10% 63V
	3507	4822 116 52244	15k 5% 0,5W
	3508	4822 051 20153	15k 1% 0,1W
	3509-3510	4822 117 11149	82k 1% 0,1W
	3527-3528	4822 051 20223	22k 5% 0,1W
	3663	4822 051 10102	1k 2% 0,25W
	3664	4822 051 11002	1k 1% 0,4W
	4560	4822 051 20008	Jumper 0R
	7507	4822 209 83357	NJM4560M

Delete 3529-3530

* From production week 9710 onwards the Aux-in circuitry is shifted to the Front Board (.2 layout) by:

Delete 1507, 2545-2546, 2573-2574, 2589, 3571-3572 and 3593-3594.

* From production week 9717 onwards the undermentioned components are change to adjust the sub-woofer output level to 1.6V +/- 3dB 0.6% THD (350mV at Aux-in, Max Volume position).

Change	2632 to 470pF 10% 50V	5322 122 32268
	3652 to 1k 2% 0,25W	4822 051 10102
	3655 to 4k7 5% 0,1W	4822 051 20472
Delete	3654	

* From production week 9718 onwards layout stage .3 is implemented.

Reason: - Re-routing of Headphone ground line
- Provision of mute line (wire 1519) to Line-out pcb on the Front board

Add	1519	Wire for mute line
	4565	4822 051 20008 Jumper 0R 0805

* From production week 9726 onwards layout stage .4 is implemented due to addition of item 3690 for other application. New drawings are enclosed.

* From production week 9730 onwards the CD amplification reserve is increased by 3 dB with:

Change	3559 to 27k 5% 0,1W	4822 051 20273
	3560 to 27k 5% 0,1W	4822 051 20273

1997 - 08 - 19

Power 1 Module

* From production week 9734 onwards layout stage .2 is implemented. New drawings are enclosed.

Reason: Combine +12A and +12M into one common supply line with improved ripple.

Add	2364	4822 124 41579	10µF 20% 50V
	3052	4822 116 83864	10k 5% 0,5W
Delete	2315, 2319-2320, 3315, 6344, 7304 and 9319		

ETF2 TAPE MODULE

* From production week 9730 onwards the undermentioned is change to solve auto-stop problem by increasing the EOT signal level.

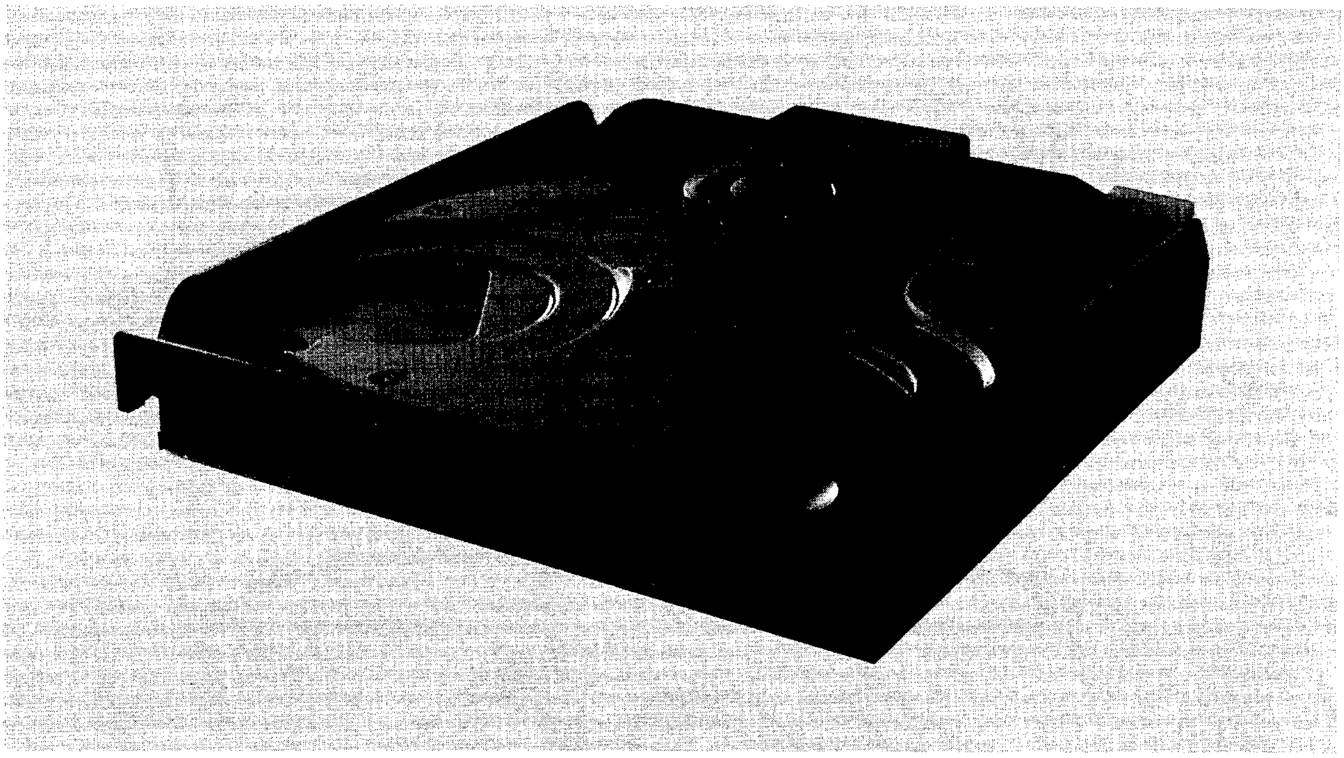
Change	3689 to 15k 5% 0,1W	4822 051 20153
	3759 to 15k 5% 0,1W	4822 051 20153

* From production week 9732 onwards layout stage .5 is implemented to playback distortion by connecting transistor 7787 collector to before resistor 3765 (pin 2 of 7720) instead of after.

CDC-3 MODULE

A new CDC-3 Module is introduced into the set from production week:
9736 for sets serial no. RZ......
9738 for sets serial no. SV......
9742 for sets serial no. KT......

The electrical schematics, layout, exploded view, etc are enclosed.



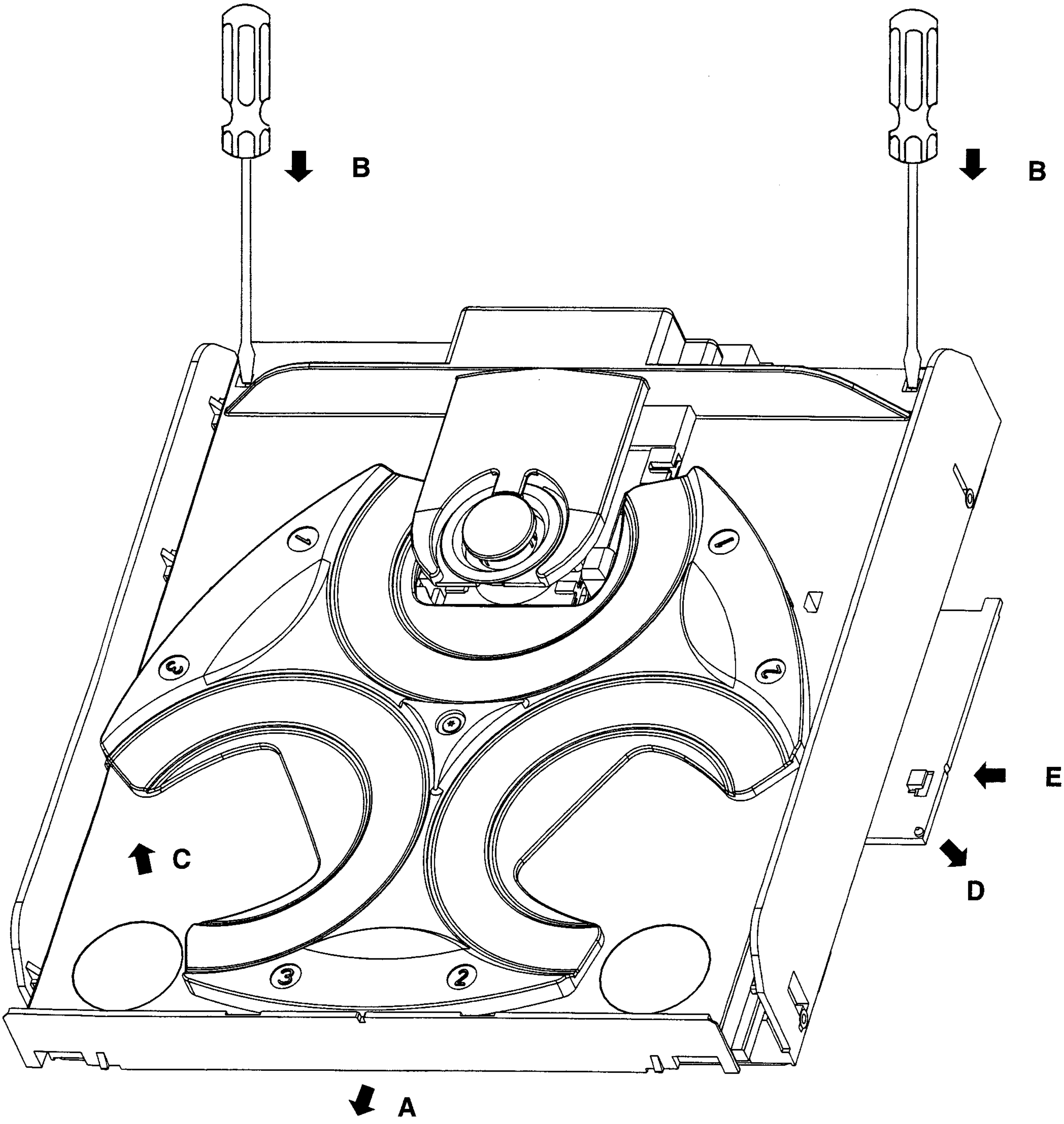
3CDC Module

(3 Disc Carrousel Changer)

TABLE OF CONTENTS

Demounting Hints 10-2
Servicing Hints 10-3
Lubrication Instructions 10-4
ESD Warnings 10-6
Blockdiagram 10-7
Wiring Diagram 10-8
Connector Board 10-9
Optical Out (not on all versions) 10-9
Component Layout Main Board 10-10
Circuit Diagram part1 10-11
Component Layout Main Board 10-12
Circuit Diagram part2 10-13
Exploded View 10-14
Mechanical Partslist 10-14
Electrical Partslist 10-15

Demounting Hints



Demounting of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to demount from chassis

Demounting of Flex Plate

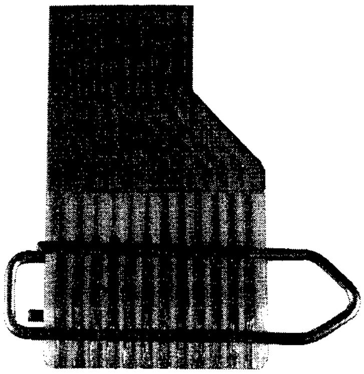
→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to demount from bottom plate

Servicing Hints

Replacement of CD Drive

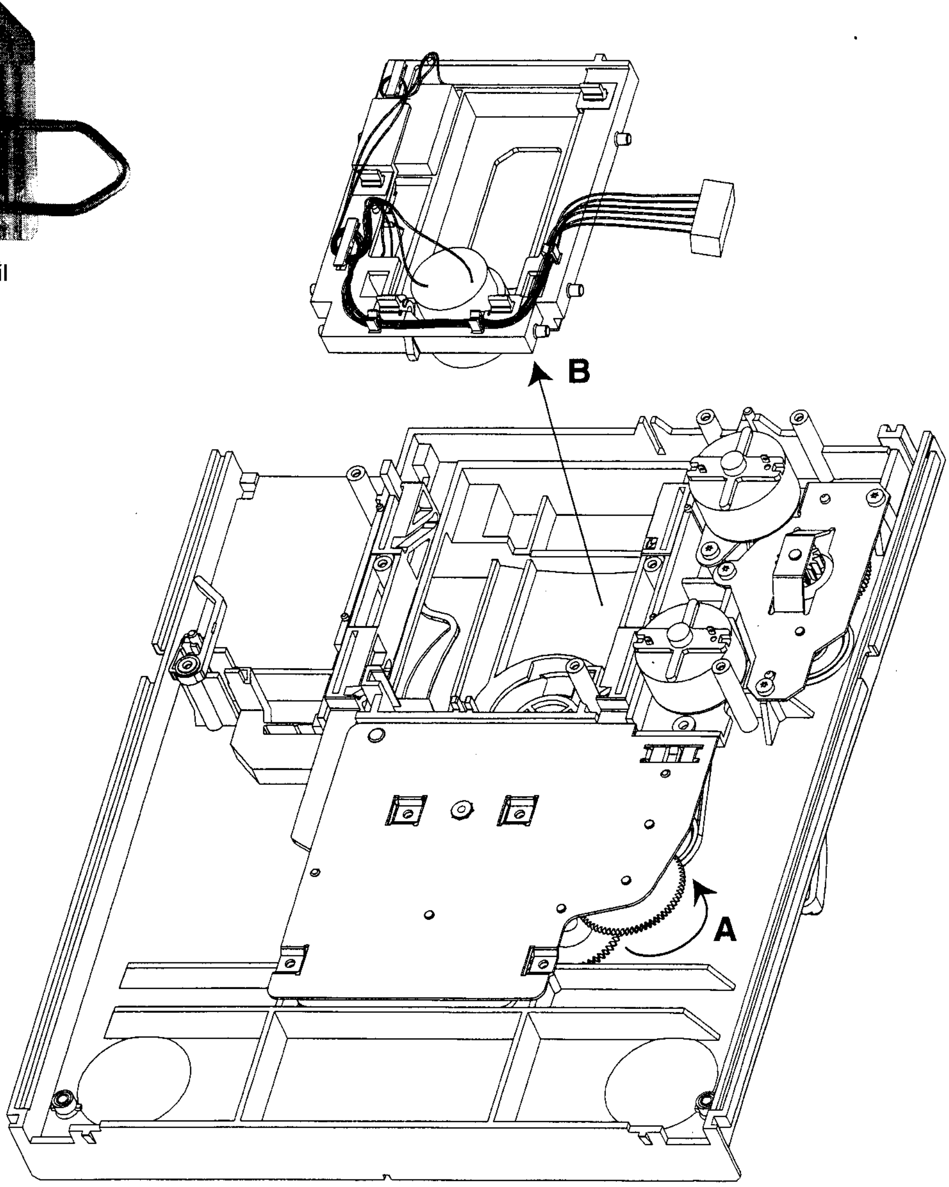
See also exploded view of changer mechanism.

1. Demount flex plate (pos 140).
2. Demount printed circuit board: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CD drive from Printed circuit board. Shortcircuit the flexfoil with a paperclip to protect the laser against ESD.



CD drive flex foil

4. Remove 2 screws (pos 107,108) and demount CD drive lockings (pos 105,106).
5. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below Ⓐ.
6. Demount CD drive support (pos 95) Ⓑ.
7. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive again.

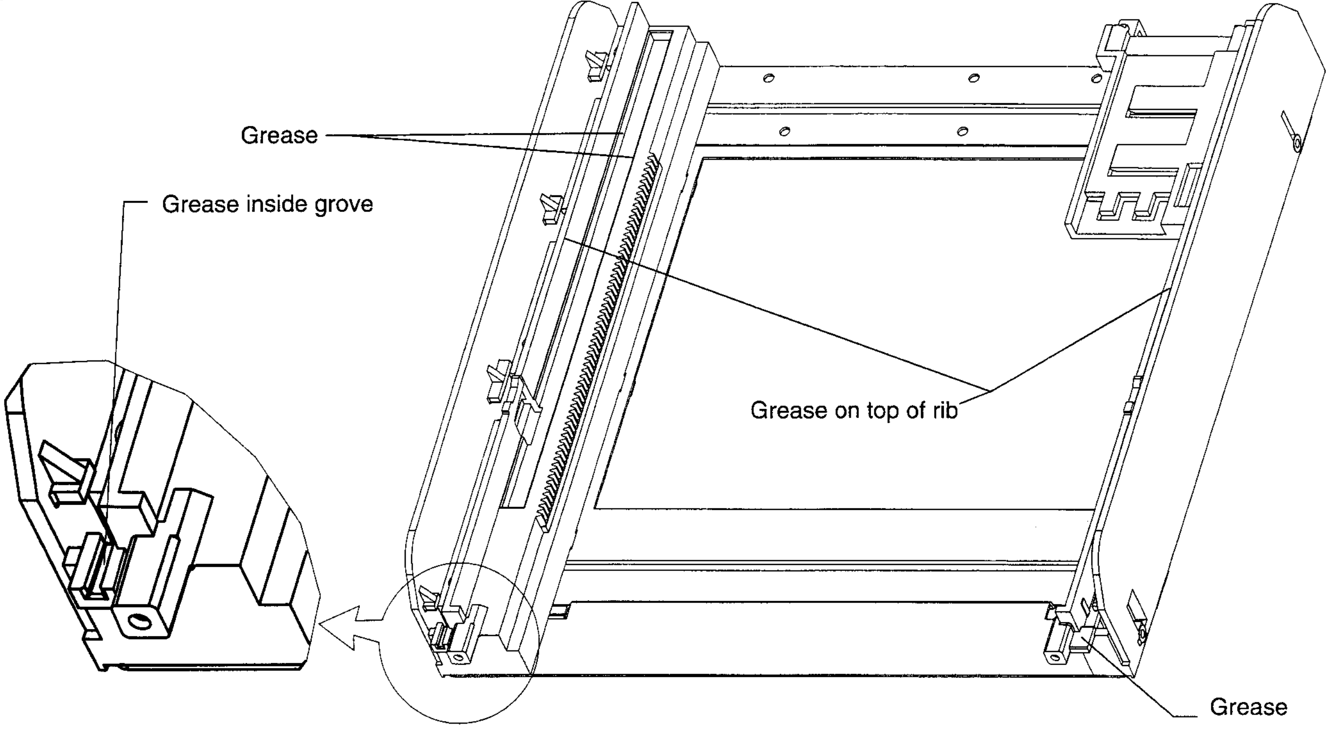


Mounting of Carrousel

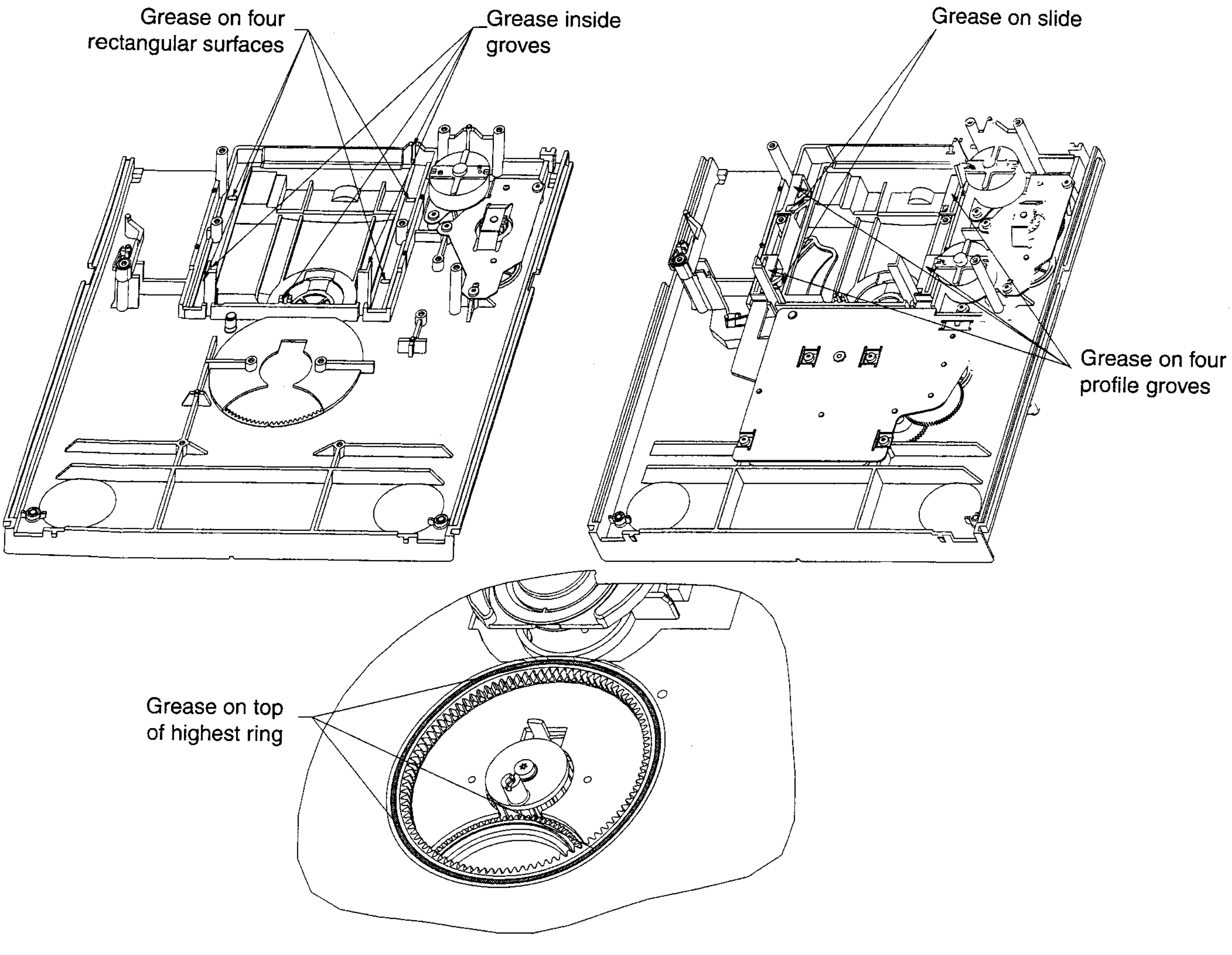
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carrousel (pos 115) so that disc is positioned right on turntable. Carrousel position number doesn´t matter.

Lubrication Instructions

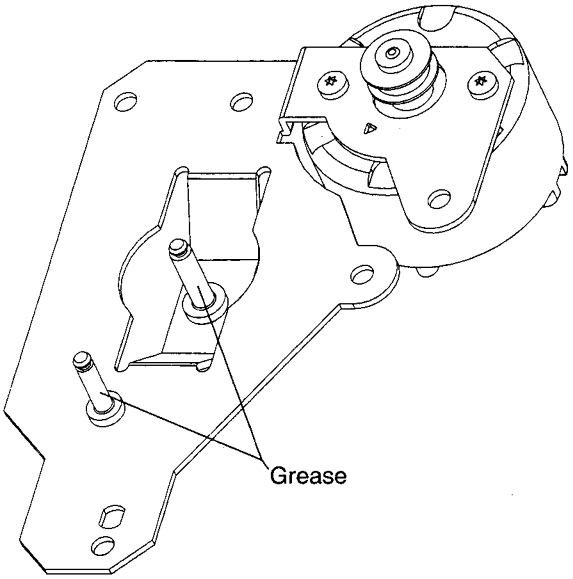
CHASSIS


Grease
Grease inside grove
Grease on top of rib
Grease

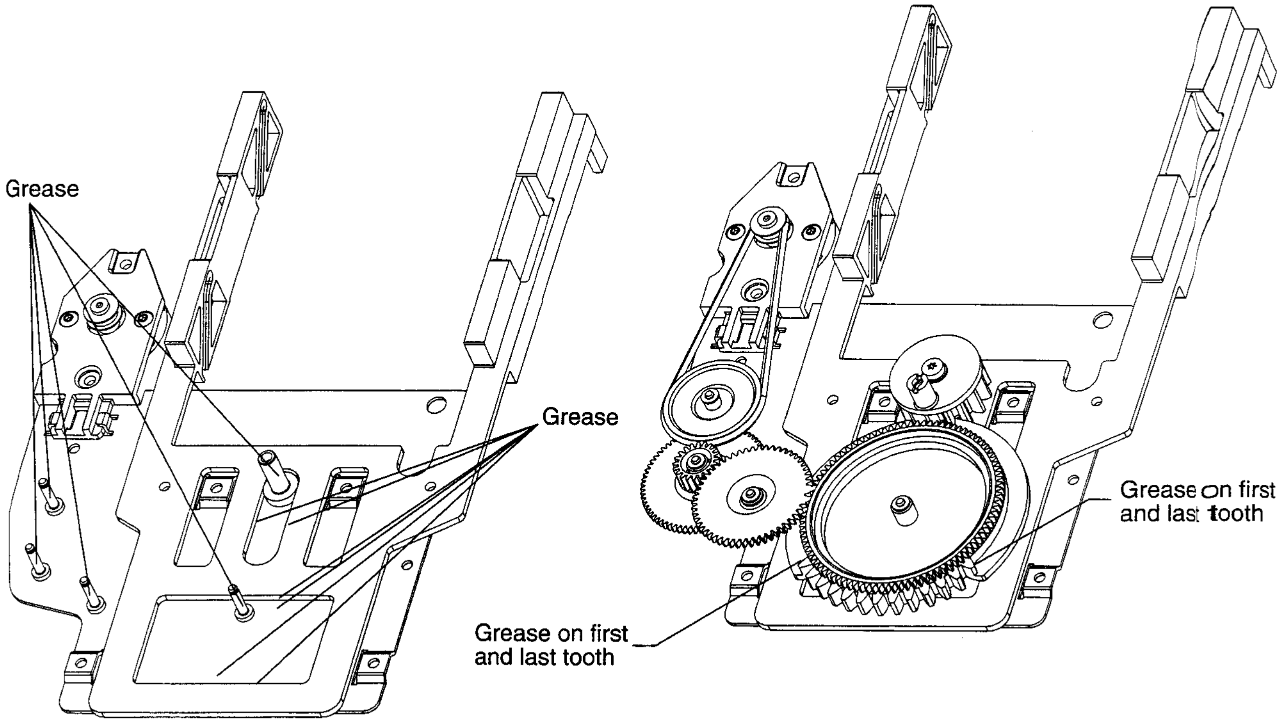
DRAWER


Grease on four rectangular surfaces
Grease inside groves
Grease on slide
Grease on four profile groves
Grease on top of highest ring

DRAWER MECHANISM



DISC CHANGE MECHANISM


Grease
Grease
Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE

- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:

1. Disconnect old CD drive flexfoil from printed board
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Short-circuit printed board with **brass-sheet (4822 321 11197)** plugged into the flexfoil connector (fig.2)
4. Remove old CD drive mechanism
5. Position new CD mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CD drive
8. Connect new flexfoil to print connector (fig.3)

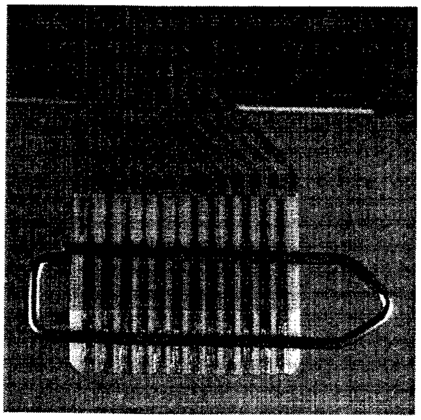


fig.1

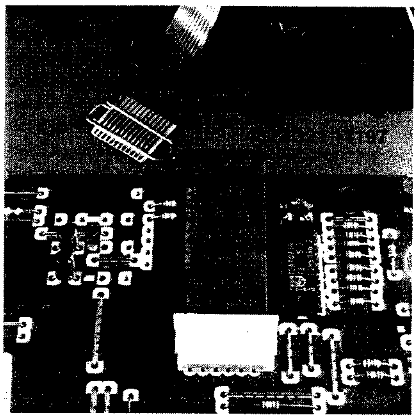


fig.2

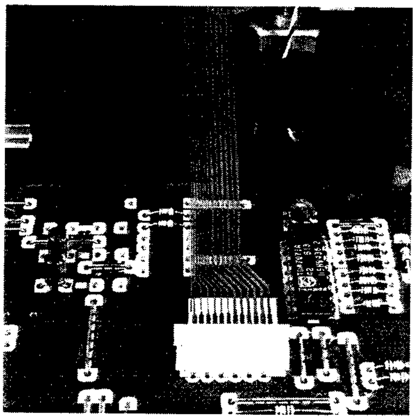
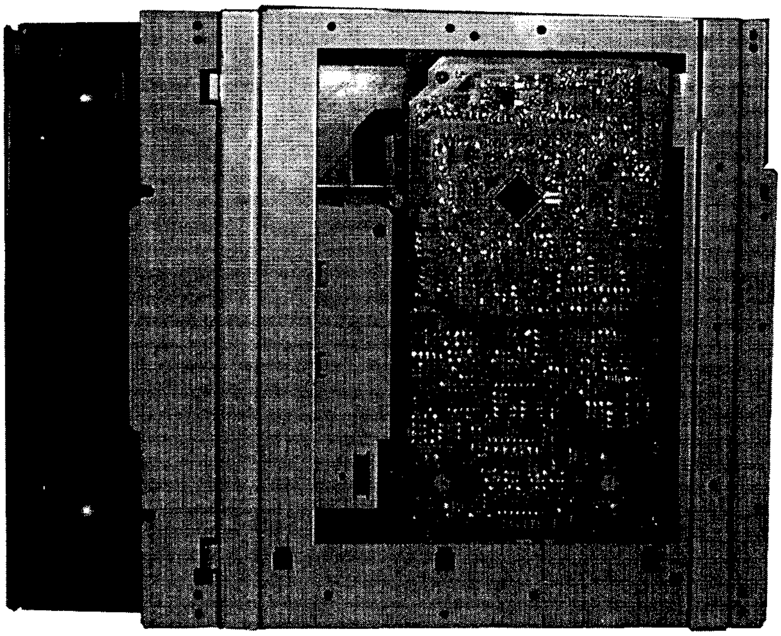


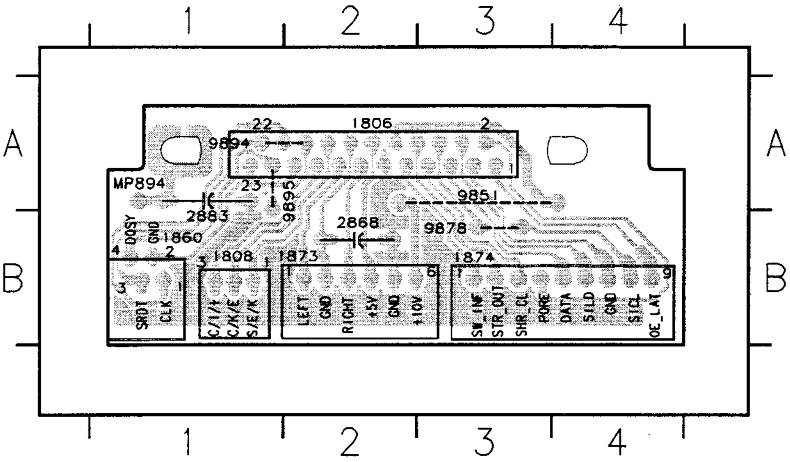
fig.3

Service Position

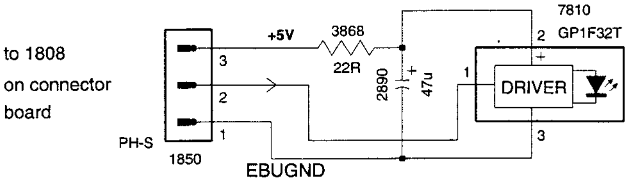


Connector Board Copperside view

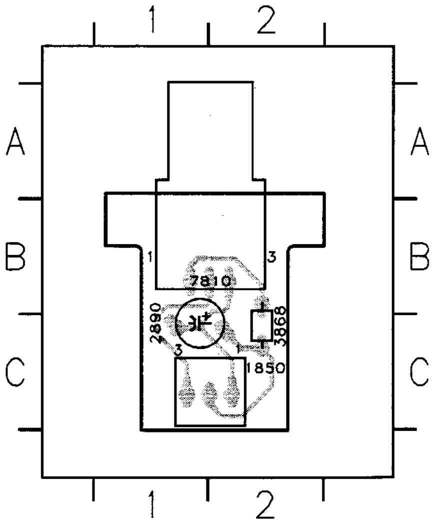
1806	A2	1873	B2	2883	B1	9894	A1
1808	B1	1874	B3	9851	A3	9895	A2
1860	B1	2868	B2	9878	B3	MP894	A1


1
2
3
4
A
B
22
1806
2
9894
1
MP894
23
9895
2883
9851
2868
9878
DOSY
GND
1860
4
2
3
1808
1
1873
6
1874
9
SRDT
CLK
C/I/Y
C/K/E
S/E/K
LEFT
GND
RIGHT
+5V
GND
+10V
SW_INF
STR_OUT
SHR_CL
POKE
DATA
S/LD
GND
S/CL
OE_LAT

Circuit Diagram Optical out


to 1808
on connector
board
PH-S
1850
3
2
1
+5V
3868
22R
2890
47u
EBUGND
7810
GP1F32T
2
1
3
DRIVER

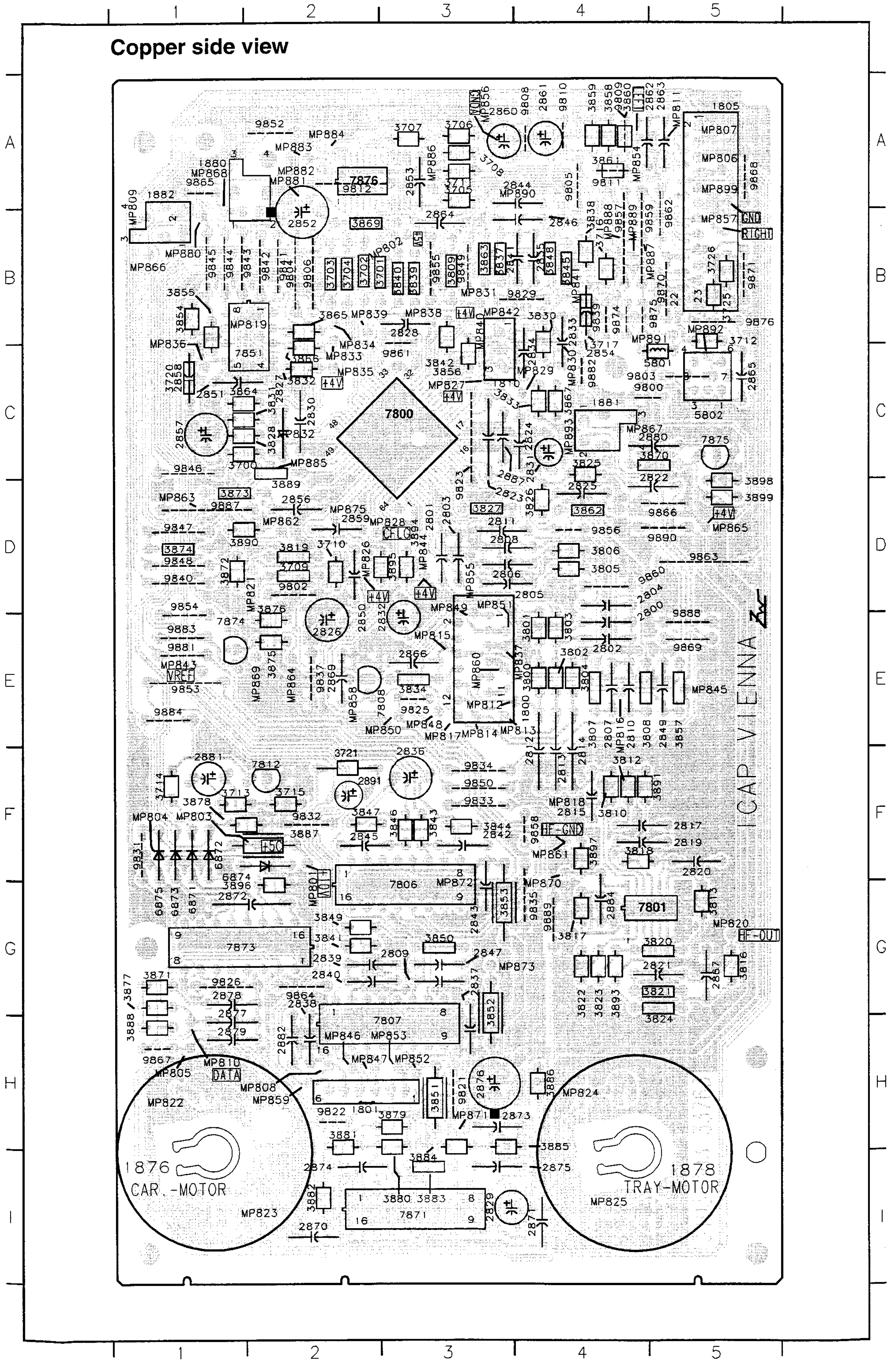
Component Layout Optical out


1
2
A
B
C
1
3
7810
2890
3
3868
1850

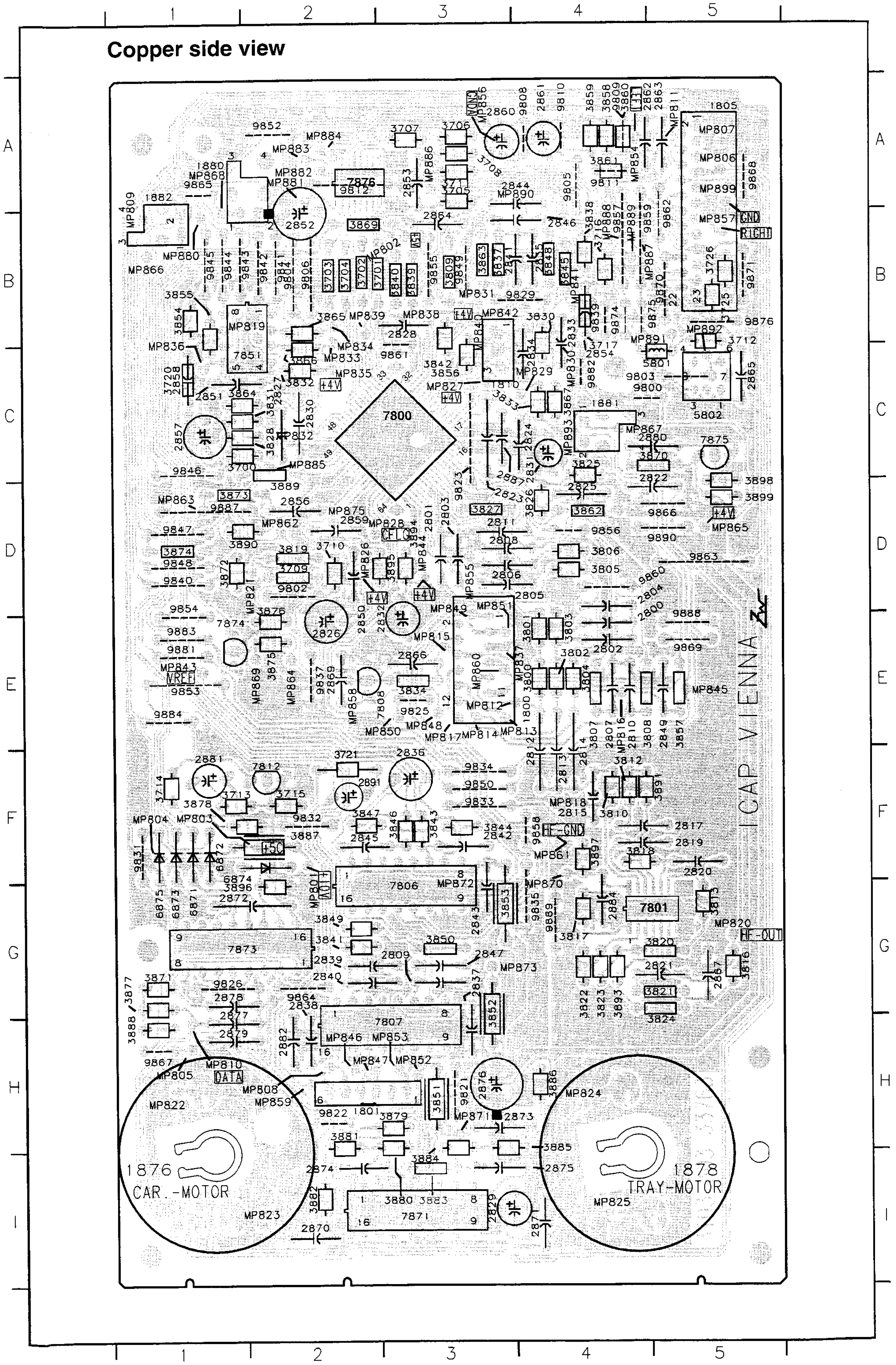
1850	C2
2890	C1
3868	C2
7810	B1

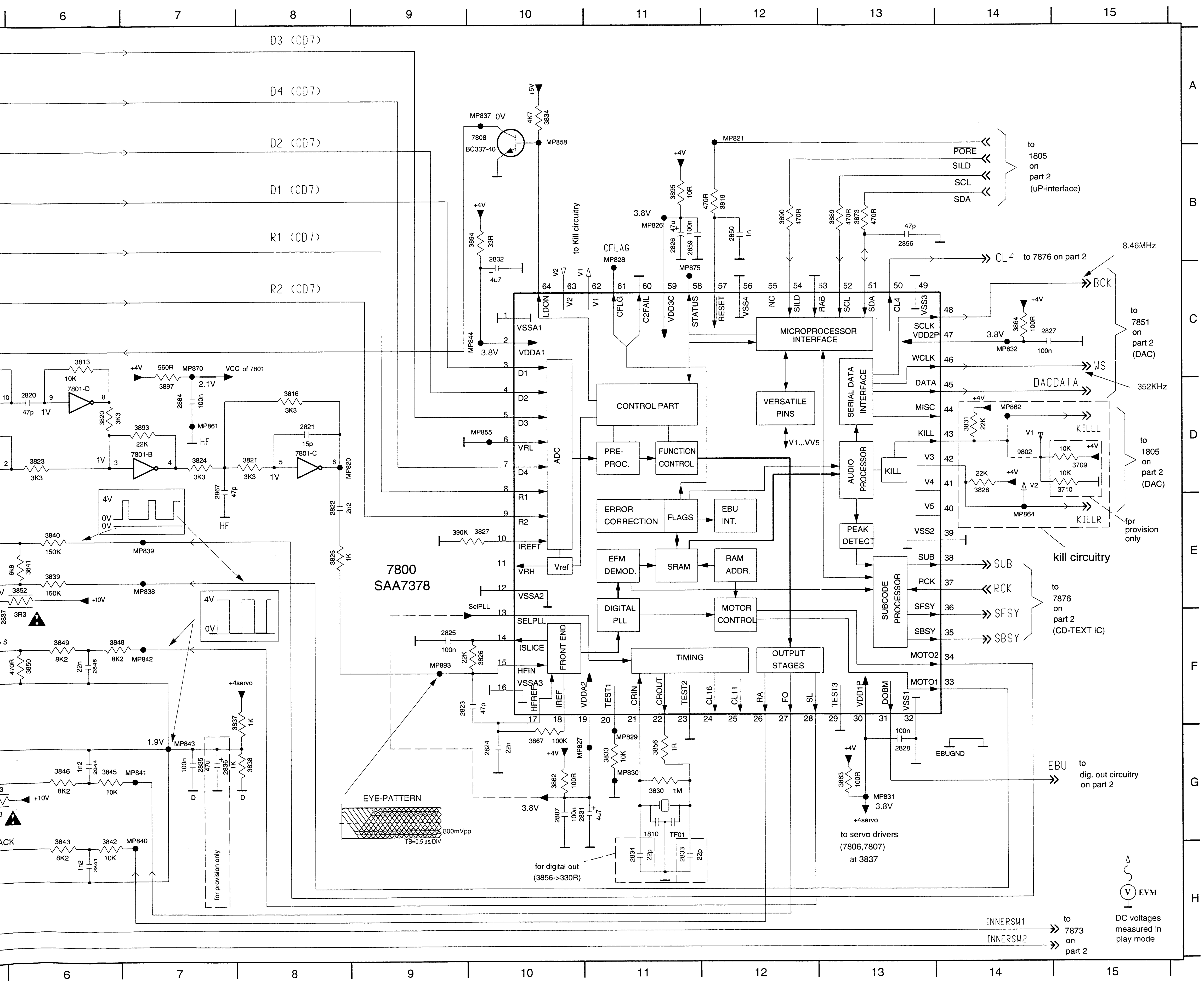
NOT ON ALL VERSIONS

Copper side view


1
2
3
4
5
A
B
C
D
E
F
G
H
I
9852
MP884
3707
3706
MP856
2860
9808
2861
9810
3859
3858
9809
3860
2862
2863
MP811
1805
MP807
MP806
9868
MP899
MP857
GND
RIGHT
MP883
MP882
MP881
1880
MP868
9865
1882
MP809
7876
9812
2853
MP886
3708
3711
3705
2844
MP890
9805
3861
9811
MP854
2852
3869
2864
2846
3838
3718
9857
MP888
MP889
9859
9862
3726
9871
MP880
MP866
9845
9844
9843
9842
9841
9804
9806
3703
3704
3702
3701
MP802
3840
3839
9855
3809
9849
3863
3837
2841
2855
3848
3845
MP887
9870
3725
MP831
9829
MP841
3855
3854
MP819
7851
3865
MP839
MP838
2828
9861
+4V
MP842
MP840
3830
2833
9839
9874
9875
22
23
MP892
9876
3712
MP836
3720
2858
2851
3864
MP834
MP833
3866
3832
MP835
+4V
3842
3856
MP827
+4V
1810
2834
MP829
MP830
2854
3717
9882
MP891
5801
9803
9800
2865
5802
2857
3831
3828
2830
2827
MP832
7800
33
32
48
49
17
16
64
1
3833
3867
MP893
2824
1881
MP867
2880
3870
7875
9846
3700
MP885
3889
2887
2823
2831
3825
2822
2825
3898
3899
MP863
3873
9887
2856
MP875
2859
MP828
MP862
CFLG
3894
2801
2803
9823
3827
3826
3862
9866
+4V
MP865
9847
3890
3874
9848
9840
3872
MP821
3819
3709
9802
3710
MP826
3895
MP844
MP855
2811
2808
2806
9856
9890
3806
3805
9863
9860
2804
2800
2805
MP849
MP851
+4V
+4V
9854
7874
3876
3875
9883
9881
MP843
VREF
9853
MP869
MP864
2826
2850
2832
MP815
3801
3803
9888
2866
3802
2802
9869
9837
2869
MP858
7808
3834
9825
MP860
MP837
1800
3800
3804
MP812
MP845
MP850
MP848
MP817
MP814
MP813
9884
2812
2813
2814
3807
2807
MP816
2810
3808
2849
3857
2881
7812
3721
2836
3714
3713
3715
2891
9834
9850
9833
3812
3891
MP818
2815
3810
ICAP VIENNA
3878
MP804
MP803
9832
3887
3847
3846
3843
3844
2842
9858
HF-GND
2817
2819
2845
+5C
MP861
3897
3818
2820
9831
6872
6874
3896
2872
6875
6873
6871
MP801
A01
7806
MP872
3853
MP870
9835
9889
2884
7801
3813
2843
MP820
HF-OUT
3817
3849
3841
7873
2839
3850
2847
MP873
2809
3820
2821
3816
2867
3871
3877
9826
2878
2840
2837
3852
3822
3823
3893
3821
3824
3888
2877
2879
9864
2838
7807
2882
MP846
MP853
9867
MP805
MP810
DATA
MP847
MP852
MP808
MP859
MP822
3851
9821
2876
3886
MP824
9822
1801
3879
MP871
2873
3881
3885
1876
CAR.-MOTOR
2874
3884
2875
1878
TRAY-MOTOR
3882
3880
3883
7871
2829
MP825
MP823
2870
2871

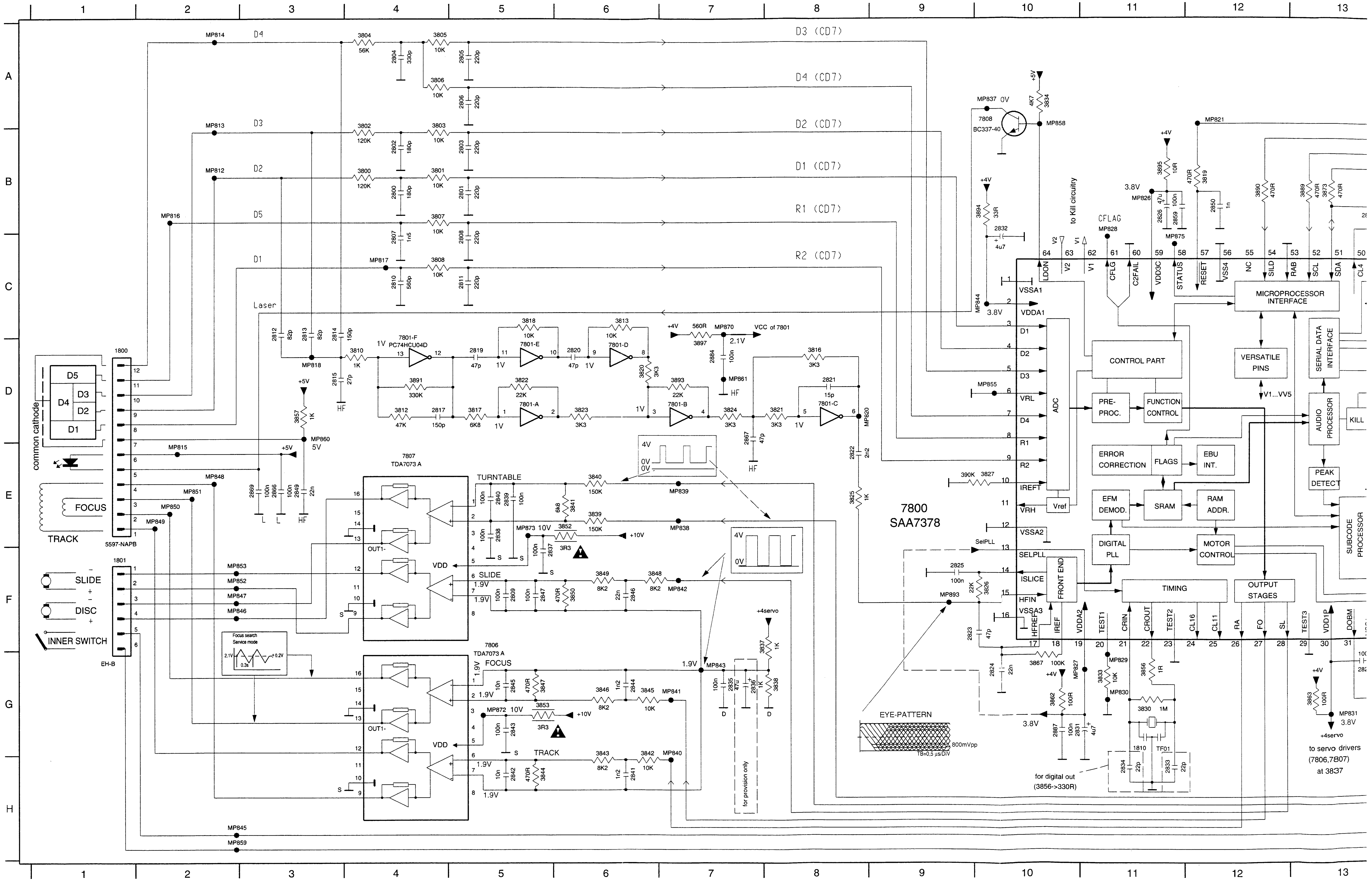
Copper side view


1
2
3
4
5
A
B
C
D
E
F
G
H
I
9852
MP884
MP883
3707
3706
MP886
1880
MP868
9865
MP882
MP881
7876
9812
2853
3708
3705
MONO
MP856
2860
9808
2861
9810
2844
MP890
3859
3858
3809
3860
2862
2863
MP811
1805
MP807
MP806
MP899
MP857
GND
RIGHT
9868
MP809
1882
2852
3869
2864
2846
9805
3861
9811
MP854
3838
3716
MP888
9857
MP889
9859
9862
MP880
MP866
9845
9844
9843
9842
9841
9806
3703
3704
3702
3701
MP802
3840
3839
9855
3809
9849
3863
3837
2841
2855
3848
3845
MP887
3726
9871
3855
3854
MP819
7851
MP836
3865
MP839
MP838
2828
+4V
MP842
MP831
9829
3830
MP841
9839
9874
9875
9870
MP892
3712
9876
MP834
MP833
3866
MP835
3832
+4V
3842
3856
MP840
2834
MP829
2833
3717
2854
MP891
5801
9803
9800
2865
5802
3720
2858
2851
3864
2827
3831
2830
9861
MP827
+4V
1810
3833
3867
MP830
9882
1881
2857
3828
MP832
7800
MP893
MP867
2880
3870
7875
3700
MP885
3889
2824
2831
3825
2887
2822
3898
3899
9846
MP863
3873
9887
2856
MP875
2859
MP828
CFLC
2801
2803
9823
2823
3826
3827
2825
3862
9866
+4V
MP865
9847
MP862
3890
2811
2808
9856
9890
3874
9848
3872
3819
3709
9802
3710
MP826
3895
3894
MP844
MP855
2806
3806
3805
9863
9840
MP82
+4V
+4V
2805
9860
2804
2800
9854
3876
7874
2826
2850
2832
MP849
MP851
3801
3803
9888
9883
9881
3875
MP815
2866
MP860
MP837
3802
2802
9869
MP843
VREF
9853
MP869
MP864
9837
2869
MP858
7808
3834
9825
3800
3804
MP845
9884
MP848
MP850
MP817
MP814
MP812
MP813
1800
3807
2807
MP816
2810
3808
2849
3857
ICAP VIENNA
2881
7812
3721
2836
9834
9850
9833
2812
2813
2814
3812
3891
3714
3878
3713
3715
2891
MP818
2815
3810
MP804
MP803
9832
3847
3846
3843
3844
2842
9858
HF-GND
2817
2819
3887
+5C
2845
MP861
3897
3818
2820
9831
6872
6874
3896
2872
6875
6873
6871
MP801
AD1+
7806
MP872
2843
3853
MP870
9835
9889
2884
7801
3813
MP820
HF-OUT
3849
3841
3850
2847
3817
7873
2839
2809
MP873
3820
2821
2867
3816
3871
3877
3888
9826
2878
2877
2879
2840
9864
2838
2837
7807
3852
3821
3822
3823
3893
3824
2882
MP846
MP853
9867
MP805
MP810
DATA
MP847
MP852
MP808
MP859
MP822
9822
1801
3851
9821
2876
3886
MP824
MP871
2873
3879
3881
3885
1876
CAR.-MOTOR
2874
3884
2875
1878
TRAY-MOTOR
3882
3880
3883
7871
2829
2871
MP823
2870
MP825


D3 (CD7)
D4 (CD7)
D2 (CD7)
D1 (CD7)
R1 (CD7)
R2 (CD7)
7800
SAA7378
7808
BC337-40
MP837 0V
MP858
+5V
4K7 3834
to Kill circuitry
CFLAG
MP828
MP826
MP875
MP821
3.8V
+4V
PORE
SILD
SCL
SDA
to 1805 on part 2 (uP-interface)
CL4 to 7876 on part 2
8.46MHz
BCK
WS
DACDATA
352KHz
to 7851 on part 2 (DAC)
KILLL
KILLR
to 1805 on part 2 (DAC)
for provision only
kill circuitry
SUB
RCK
SFSY
SBSY
to 7876 on part 2 (CD-TEXT IC)
MICROPROCESSOR INTERFACE
CONTROL PART
VERSATILE PINS
SERIAL DATA INTERFACE
PRE-PROC.
FUNCTION CONTROL
ADC
Vref
ERROR CORRECTION
FLAGS
EBU INT.
AUDIO PROCESSOR
KILL
PEAK DETECT
EFM DEMOD.
SRAM
RAM ADDR.
SUBCODE PROCESSOR
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
V1...VV5
VSSA1
VDDA1
D1
D2
D3
VRL
D4
R1
R2
IREFT
VRH
VSSA2
SELPLL
ISLICE
HFIN
VSSA3
HFREF
IREF
VDDA2
TEST1
CRIN
CROUT
TEST2
CL16
CL11
RA
FO
SL
TEST3
VDD1P
DOBM
VSS1
MOTO1
MOTO2
SBSY
SFSY
RCK
SUB
VSS2
V5
V4
V3
KILL
MISC
DATA
WCLK
VDD2P
SCLK
LDON
V2
V1
CFLG
C2FAIL
VDD3C
STATUS
RESET
VSS4
NC
SILD
RAB
SCL
SDA
CL4
VSS3
7801-D
7801-B
7801-C
VCC of 7801
MP870
2.1V
HF
MP861
MP820
MP839
MP838
MP842
MP843
MP841
MP840
MP844
MP855
MP893
MP827
MP829
MP830
MP831
MP832
MP862
MP864
SelPLL
1.9V
+4servo
+10V
for provision only
EYE-PATTERN
800mVpp
TB=0.5 µs/DIV
for digital out (3856->330R)
1810
TF01
3830 1M
to servo drivers (7806,7807) at 3837
EBUGND
EBU
to dig. out circuitry on part 2
INNERSW1
INNERSW2
to 7873 on part 2
EVM
DC voltages measured in play mode
4V
0V
A
B
C
D
E
F
G
H
6
7
8
9
10
11
12
13
14
15

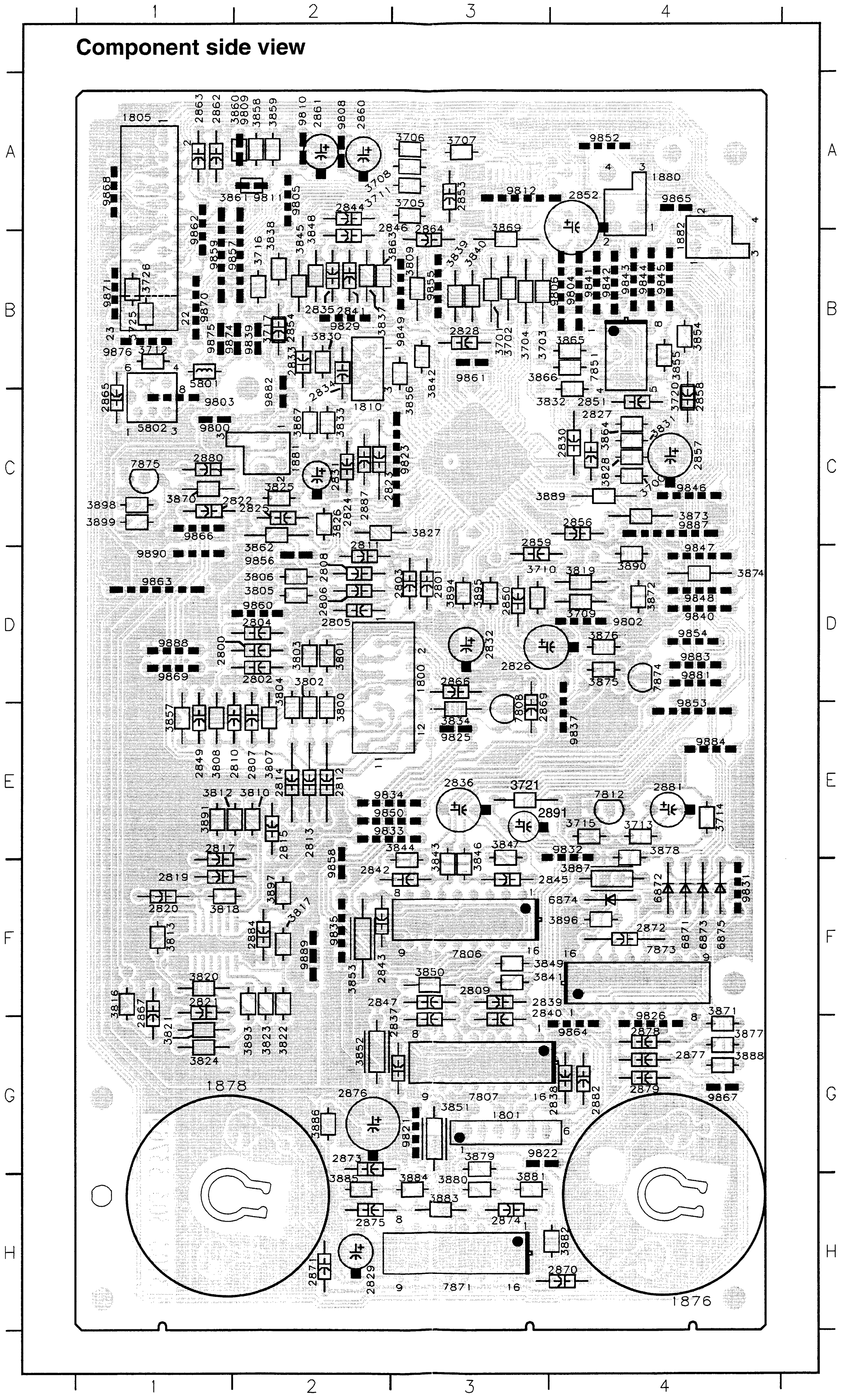
1800	D1
1801	F1
1810	G11
2800	B4
2801	B5
2802	B4
2803	B5
2804	A4
2805	A5
2806	A5
2807	C4
2808	C5
2809	F5
2810	C4
2811	C5
2812	C3
2813	C3
2814	C3
2815	D3
2817	D4
2819	D5
2820	D6
2821	D8
2822	E8
2823	F9
2824	G9
2825	F9
2826	B11
2827	C14
2828	G13
2831	G10
2832	B10
2833	H11
2834	H11
2835	G7
2836	G7
2837	F5
2838	E5
2839	E5
2840	E5
2841	H6
2842	H5
2843	G5
2844	G6
2845	G5
2846	F6
2847	F5
2849	E3
2850	B12
2856	B13
2859	B11
2866	E3
2867	D7
2869	E3
2884	D7
2887	G10
3709	D15
3710	D15
3800	B4
3801	B4
3802	A4
3803	A4
3804	A4
3805	A4
3806	A4
3807	B4
3808	C4
3810	D4
3812	D4
3813	C6
3816	D8
3817	D5
3818	C5
3819	B12
3820	D6
3821	D8
3822	D5
3823	D6
3824	D7
3825	E8
3826	F10
3827	E10
3828	D14
3830	G11
3831	D14
3833	G11
3834	B10
3837	F8
3838	G8
3839	E6
3840	E6
3841	E6
3842	G6
3843	G6
3844	H5
3845	G6
3846	G6
3847	G5
3848	F6
3849	F6
3850	F6
3852	E6
3853	G5
3856	G11
3857	D3
3862	G10
3863	G13
3864	C14
3867	G10
3873	B13
3889	B13
3890	B12
3891	D4
3893	D7
3894	B10
3895	B11
3897	D7
7800	E9
7801-A	D5
7801-B	D7
7801-C	D8
7801-D	D6
7801-E	D5
7801-F	D4
7806	G5
7807	E4
7808	B10
9802	D14
MP812	B2
MP813	A2
MP814	A2
MP815	E2
MP816	B2
MP817	C4
MP818	D3
MP820	D8
MP821	B12
MP826	B11
MP827	G10
MP828	B11
MP829	G11
MP830	G11
MP831	G13
MP832	C14
MP837	B10
MP838	E6
MP839	E6
MP840	G7
MP841	G7
MP842	F7
MP843	G7
MP844	C10
MP845	H3
MP846	F2
MP847	F2
MP848	E2
MP849	E2
MP850	E2
MP851	E2
MP852	F2
MP853	F2
MP855	D10
MP858	B10
MP859	H3
MP860	D3
MP861	D7
MP862	D14
MP864	E14
MP870	C7
MP872	G5
MP873	E5
MP875	C11
MP893	F9

Circuit Diagram Main Board part1

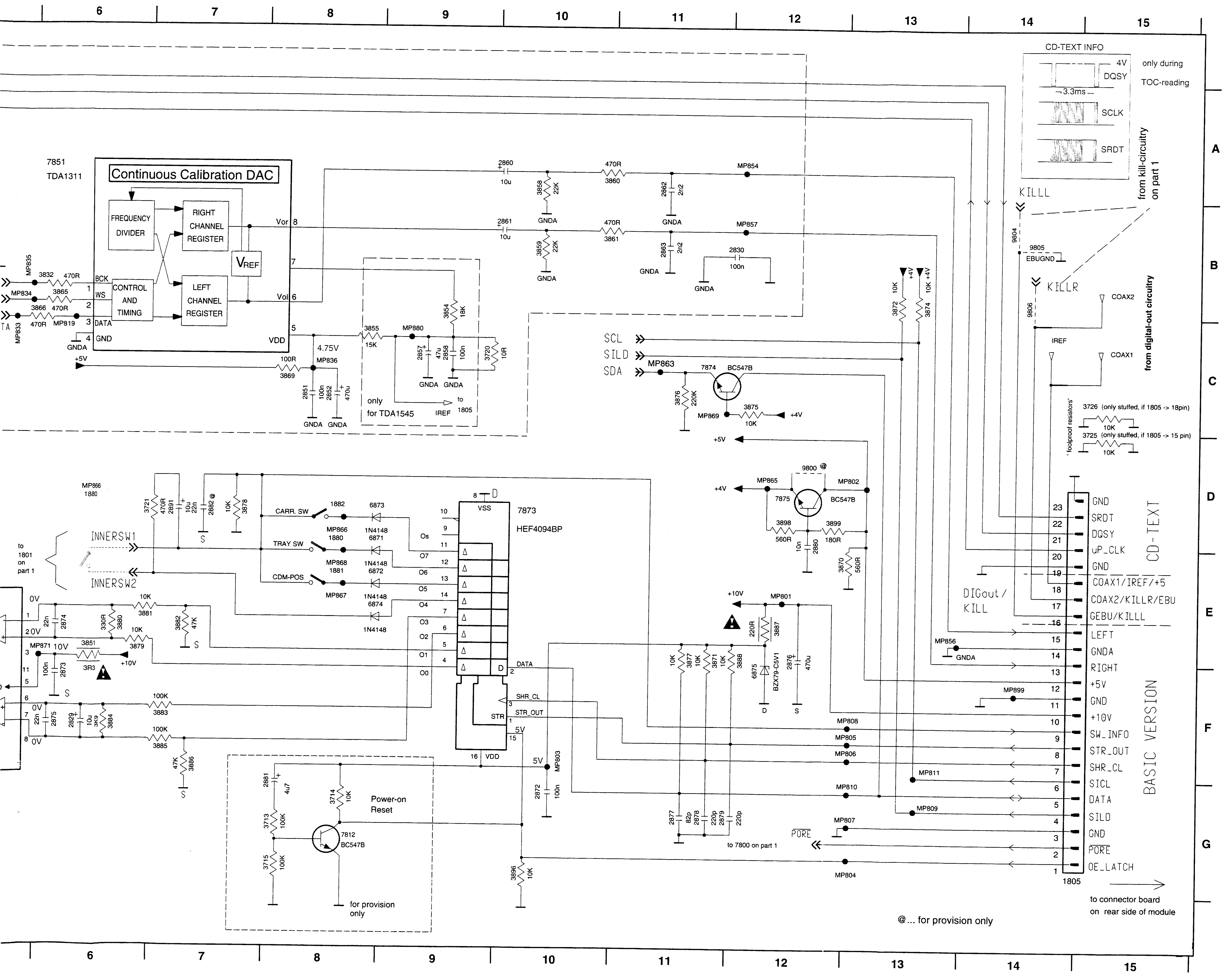


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H
MP814 D4
MP813 D3
MP812 D2
MP816 D5
D1
Laser
3804 56K
3805 10K
3806 10K
3802 120K
3803 10K
3800 120K
3801 10K
3807 10K
3808 10K
2804 330p
2805 220p
2806 220p
2802 180p
2803 220p
2800 180p
2801 220p
2807 1n5
2808 220p
MP817
2810 560p
2811 220p
D3 (CD7)
D4 (CD7)
D2 (CD7)
D1 (CD7)
R1 (CD7)
R2 (CD7)
2812 82p
2813 82p
2814 150p
MP818
3810 1K
2815 27p
HF
7801-F PC74HCU04D
1V
2819 47p
3818 10K
7801-E
2820 47p
3813 10K
7801-D
3820 3K3
3891 330K
3822 22K
3812 47K
2817 150p
3817 6K8
7801-A
3823 3K3
7801-B
3893 22K
3824 3K3
3821 3K3
7801-C
2821 15p
3816 3K3
2867 47p
MP820
2822 2n2
3825 1K
+4V 560R MP870 VCC of 7801
3897
2.1V
2884 100n
MP861
1800
D5 D3 D4 D2 D1
common cathode
FOCUS
TRACK
5597-NAPB
MP815
MP860 5V
+5V
3857 1K
MP848
MP851
MP850
MP849
2869 100n
2866 100n
2849 100n
22n
1801
SLIDE
DISC
INNER SWITCH
EH-B
MP853
MP852
MP847
MP846
7807 TDA7073 A
TURNTABLE
3840 150K
MP839
3841 6K8
3839 150K
MP838
MP873 10V
3852 3R3
+10V
2837 100n
2840 100n
2839 100n
2838 100n
OUT1-
VDD
SLIDE
1.9V
3849 8K2
3848 8K2
MP842
2809 100n
2847 100n
3850 470R
2846 22n
4V 0V
Focus search Service mode
2.1V 0.3s +0.2V
7806 TDA7073 A
FOCUS
2845 10n
3847 470R
3846 8K2
2844 1n2
3845 10K
MP841
MP872 10V
3853 3R3
2843 100n
TRACK
3843 8K2
3842 10K
MP840
2842 10n
3844 470R
2841 1n2
MP843
+4servo
3837 1K
2835 100n
2836 470
3838 1K
for provision only
MP845
MP859
MP837 0V
7808 BC337-40
3834 4K7
+5V
MP858
3894 33R
2832 4u7
+4V
to Kill circuitry
MP844
3.8V
MP855
390K 3827
SelPLL
2825 100n
3826 22K
MP893
2823 47p
2824 22n
7800 SAA7378
VSSA1 VDDA1 D1 D2 D3 VRL D4 R1 R2 IREFT VRH VSSA2 SELPLL ISLICE HFIN VSSA3 HFREF IREF VDDA2 TEST1 CRIN CROUT TEST2 CL16 CL11 RA FO SL TEST3 VDD1P DOBM
LDON V2 V1 CFLG C2FAIL VDD3C STATUS RESET VSS4 NC SILD RAB SCL SDA CL4
ADC Vref
CONTROL PART
PRE-PROC.
FUNCTION CONTROL
ERROR CORRECTION
FLAGS
EBU INT.
EFM DEMOD.
SRAM
RAM ADDR.
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
MICROPROCESSOR INTERFACE
VERSATILE PINS
V1...V5
SERIAL DATA INTERFACE
AUDIO PROCESSOR
KILL
PEAK DETECT
SUBCODE PROCESSOR
CFLAG MP828
MP826 3.8V
2826 47u
2859 100n
MP875
3895 10R
+4V
3819 470R
MP821
2850 1n
3890 470R
3889 470R
3873 470R
3867 100K
MP827
MP829
3833 10K
MP830
3856 1R
3862 100R
2887 100n
2831 4u7
3830 1M
1810
TF01
2834 22p
2833 22p
for digital out (3856->330R)
EYE-PATTERN
800mVpp
TB=0,5 µs/DIV
3863 100R
MP831 3.8V
+4servo
to servo drivers (7806,7807) at 3837

1800	E3	2869	E2	3842	B3	9802	D2
1801	H2	2870	I2	3843	F3	9803	C5
1805	B5	2871	I4	3844	F3	9804	B2
1810	C3	2872	G2	3845	B4	9805	A4
1876	I1	2873	H3	3846	F3	9806	B2
1878	I4	2874	I2	3847	F2	9808	A4
1880	B2	2875	I3	3848	B4	9809	A4
1881	C4	2876	H3	3849	G2	9810	A4
1882	B1	2877	G1	3850	G3	9811	A4
2800	D4	2878	G1	3851	H3	9812	A2
2801	D3	2879	H1	3852	G3	9821	H3
2802	E4	2880	C5	3853	G3	9822	H2
2803	D3	2881	F1	3854	B1	9823	C3
2804	D4	2882	H2	3855	B1	9825	E3
2805	D3	2884	G4	3856	C3	9826	G1
2806	D3	2887	C3	3857	E5	9829	B4
2807	E4	3700	C1	3858	A4	9831	F1
2808	D3	3701	B3	3859	A4	9832	F2
2809	G3	3702	B2	3860	A4	9833	F3
2810	E4	3703	B2	3861	A4	9834	F3
2811	D3	3704	B2	3862	D4	9835	G4
2812	F4	3705	A3	3863	B3	9837	E2
2813	F4	3706	A3	3864	C1	9839	B4
2814	F4	3707	A3	3865	B2	9840	D1
2815	F4	3708	A3	3866	C2	9841	B2
2817	F4	3709	D2	3867	C4	9842	B2
2819	F4	3710	D2	3869	B2	9843	B2
2820	F5	3711	A3	3870	C5	9844	B1
2821	G5	3712	B5	3871	G1	9845	B1
2822	D5	3713	F1	3872	D1	9846	C1
2823	C3	3714	F1	3873	D1	9847	D1
2824	C4	3715	F2	3874	D1	9848	D1
2825	D4	3716	B4	3875	E2	9849	B3
2826	D2	3717	B4	3876	E2	9850	F3
2827	C2	3720	C1	3877	G1	9852	A2
2828	B3	3725	B5	3878	F2	9853	E1
2829	I3	3726	B5	3879	H3	9854	D1
2830	C2	3800	E4	3880	H3	9855	B3
2831	C4	3801	E4	3881	H2	9856	D4
2832	E3	3802	E4	3882	I2	9857	B4
2833	B4	3803	E4	3883	I3	9858	F4
2834	C3	3804	E4	3884	H3	9859	B4
2835	B4	3805	D4	3885	H3	9860	D4
2836	F3	3806	D4	3886	H4	9861	B3
2837	H3	3807	E4	3887	F2	9862	B5
2838	H2	3808	E4	3888	H1	9863	D5
2839	G2	3809	B3	3889	C2	9864	G2
2840	G2	3810	F4	3890	D1	9865	A1
2841	B3	3812	F4	3891	F4	9866	D5
2842	F3	3813	G5	3893	G4	9867	H1
2843	G3	3816	G5	3894	D3	9868	A5
2844	B4	3817	G4	3895	D3	9869	E5
2845	F2	3818	F4	3896	G2	9870	B5
2846	B4	3819	D2	3897	F4	9871	B5
2847	G3	3820	G5	3898	D5	9874	B4
2849	E5	3821	G5	3899	D5	9875	B4
2850	D2	3822	G4	5801	B5	9876	B5
2851	C1	3823	G4	5802	C5	9881	E1
2852	A2	3824	G5	6871	F1	9882	C4
2853	A3	3825	C4	6872	F1	9883	E1
2854	B4	3826	D4	6873	F1	9884	E1
2856	D2	3827	D3	6874	F2	9887	D1
2857	C1	3828	C1	6875	F1	9888	E5
2858	C1	3830	B4	7806	G3	9889	G4
2859	D2	3831	C1	7807	H3	9890	D5
2860	A3	3832	C2	7808	E2		
2861	A4	3833	C4	7812	F2		
2862	A4	3834	E3	7851	B2		
2863	A5	3837	B3	7871	I3		
2864	B3	3838	B4	7873	G1		
2865	C5	3839	B3	7874	E1		
2866	E3	3840	B3	7875	C5		
2867	G5	3841	G2	9800	C4		

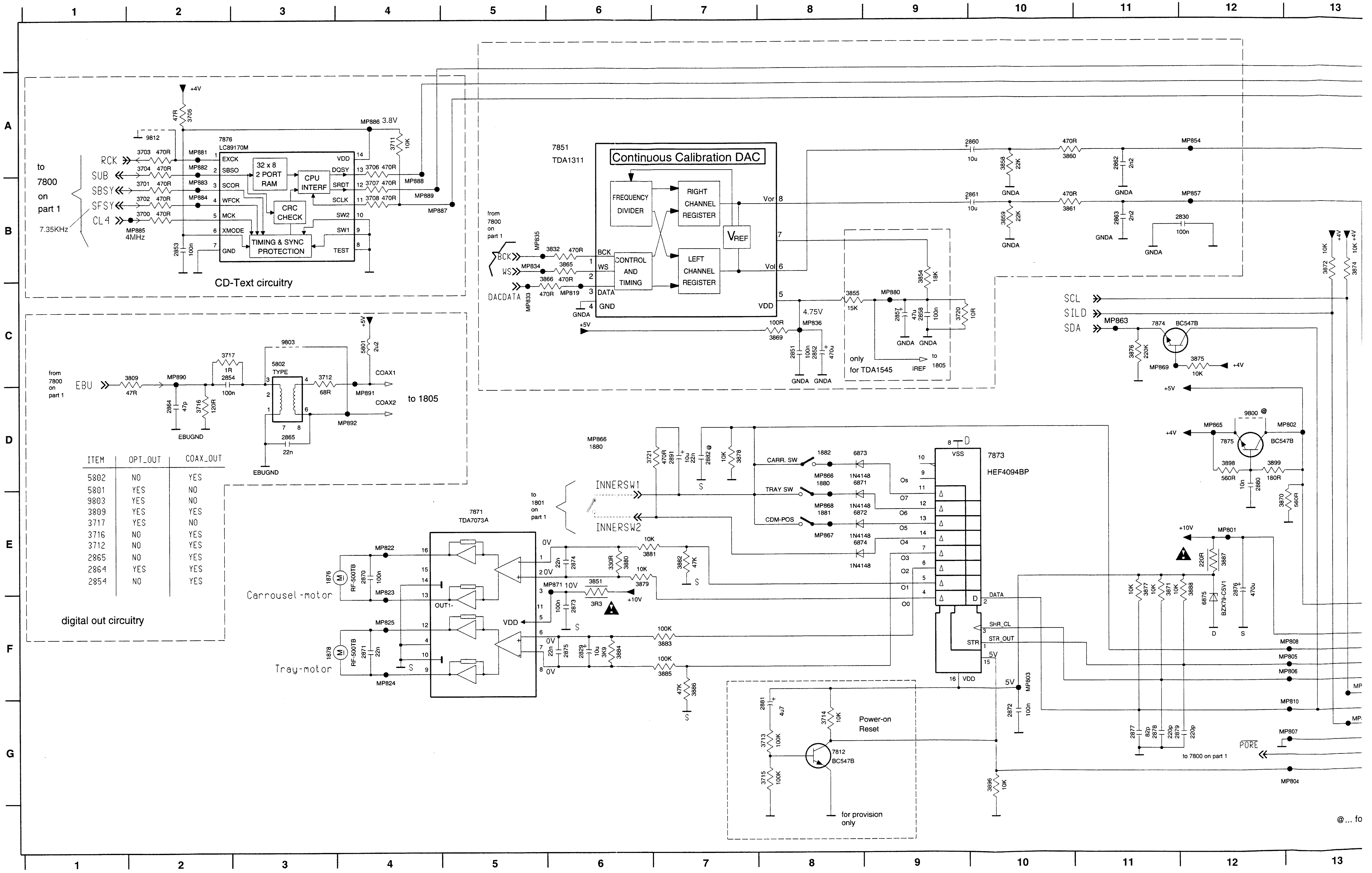


1800	D3	2869	E3	3842	B3	9802	D4
1801	G3	2870	H4	3843	F3	9803	C1
1805	A1	2871	H2	3844	F3	9804	B4
1810	B2	2872	F4	3845	B2	9805	A2
1876	H4	2873	G2	3846	F3	9806	B4
1878	H1	2874	H3	3847	E3	9808	A2
1880	B4	2875	H2	3848	B2	9809	A2
1881	C2	2876	G3	3849	F3	9810	A2
1882	B4	2877	G4	3850	F3	9811	A2
2800	D2	2878	G4	3851	G3	9812	A3
2801	D3	2879	G4	3852	G2	9821	G3
2802	D2	2880	C1	3853	F2	9822	G3
2803	D3	2881	E4	3854	B4	9823	C3
2804	D2	2882	G4	3855	B4	9825	E3
2805	D2	2884	F2	3856	B3	9826	G4
2806	D2	2887	C2	3857	E1	9829	B2
2807	E2	3700	C4	3858	A2	9831	F4
2808	D2	3701	B3	3859	A2	9832	E4
2809	F3	3702	B3	3860	A2	9833	E2
2810	E2	3703	B3	3861	A2	9834	E2
2811	D2	3704	B3	3862	C2	9835	F2
2812	E2	3705	A3	3863	B2	9837	E4
2813	E2	3706	A3	3864	C4	9839	B2
2814	E2	3707	A3	3865	B4	9840	D4
2815	E2	3708	A3	3866	B4	9841	B4
2817	F1	3709	D4	3867	C2	9842	B4
2819	F1	3710	D3	3869	B3	9843	B4
2820	F1	3711	A3	3870	C1	9844	B4
2821	G1	3712	B1	3871	G4	9845	B4
2822	C1	3713	E4	3872	D4	9846	C4
2823	C2	3714	E4	3873	C4	9847	D4
2824	C2	3715	E4	3874	D4	9848	D4
2825	C2	3716	B2	3875	D4	9849	B3
2826	D3	3717	B2	3876	D4	9850	E2
2827	C4	3720	C4	3877	G4	9852	A4
2828	B3	3725	B1	3878	E4	9853	E4
2829	H2	3726	B1	3879	G3	9854	D4
2830	C4	3800	E2	3880	H3	9855	B3
2831	C2	3801	D2	3881	H3	9856	D2
2832	D3	3802	E2	3882	H4	9857	B2
2833	B2	3803	D2	3883	H3	9858	F2
2834	B2	3804	E2	3884	H3	9859	B1
2835	B2	3805	D2	3885	H2	9860	D2
2836	E3	3806	D2	3886	G2	9861	B3
2837	G2	3807	E2	3887	F4	9862	A1
2838	G4	3808	E1	3888	G4	9863	D1
2839	F3	3809	B3	3889	C4	9864	G4
2840	F3	3810	E2	3890	D4	9865	A4
2841	B2	3812	E2	3891	E1	9866	C1
2842	F3	3813	F1	3893	F2	9867	G4
2843	F2	3816	F1	3894	D3	9868	A1
2844	B2	3817	F2	3895	D3	9869	D1
2845	F3	3818	F1	3896	F4	9870	B1
2846	B2	3819	D4	3897	F2	9871	B1
2847	F3	3820	F1	3898	C1	9874	B2
2849	E1	3821	G1	3899	C1	9875	B1
2850	D3	3822	F2	5801	B1	9876	B1
2851	C4	3823	F2	5802	C1	9881	D4
2852	A4	3824	G1	6871	F4	9882	C2
2853	A3	3825	C2	6872	F4	9883	D4
2854	B2	3826	C2	6873	F4	9884	E4
2856	C4	3827	C2	6874	F4	9887	C4
2857	C4	3828	C4	6875	F4	9888	D1
2858	C4	3830	B2	7806	F3	9889	F2
2859	C3	3831	C4	7807	G3	9890	D1
2860	A2	3832	C4	7808	E3		
2861	A2	3833	C2	7812	E4		
2862	A1	3834	E3	7851	B4		
2863	A1	3837	B2	7871	H3		
2864	B3	3838	B2	7873	F4		
2865	C1	3839	B3	7874	D4		
2866	E3	3840	B3	7875	C1		
2867	F1	3841	F3	9800	C1		


7851
TDA1311
Continuous Calibration DAC
FREQUENCY DIVIDER
RIGHT CHANNEL REGISTER
LEFT CHANNEL REGISTER
CONTROL AND TIMING
VREF
BCK
WS
DATA
GND
Vor 8
Vol 6
VDD
4.75V
MP836
MP835
MP834
MP833
MP819
3832 470R
3865
3866 470R
GNDA
+5V
100R
3869
2851
2852
470u
only for TDA1545
IREF
to 1805
3855 15K
MP880
3854 18K
2857 47u
2858 100n
3720 10R
2860 10u
2861 10u
3858 22K
3859 22K
470R 3860
470R 3861
2862 2n2
2863 2n2
MP854
MP857
2830 100n
CD-TEXT INFO
4V
DQSY
3.3ms
SCLK
SRDT
only during TOC-reading
KILLL
KILLR
9804
9805
EBUGND
9806
COAX2
COAX1
IREF
from kill-circuitry on part 1
from digital-out circuitry
3872 10K
3874 10K
+4V
SCL
SILD
SDA
MP863
7874 BC547B
3876 220K
3875 10K
MP869
+5V
'foolproof resistors'
3726 (only stuffed, if 1805 -> 18pin) 10K
3725 (only stuffed, if 1805 -> 15 pin) 10K
9800 @
MP865
MP802
7875 BC547B
3898 560R
3899 180R
2880 10n
3870 560R
+10V
MP801
3887 220R
6875 BZX79-C5V1
2876 470u
3877 10K
3871 10K
3888 10K
2877 82p
2878 220p
2879 220p
to 7800 on part 1
MP866
1880
3721 470R
2891 22n
10u
2882 @
3878 10K
CARR. SW
1882
6873
TRAY SW
MP866 1880
1N4148 6871
MP868 1881
1N4148 6872
CDM-POS
MP867
1N4148 6874
1N4148
INNERSW1
INNERSW2
to 1801 on part 1
7873
HEF4094BP
VSS
Os
O7
O6
O5
O4
O3
O2
O1
O0
DATA
SHR_CL
STR_OUT
STR
16 VDD
5V
15
10K 3881
3880 330R
2874 22n
3882 47K
10K 3879
MP871 10V
3851
3R3
+10V
2873 100n
100K 3883
100K 3885
2875 22n
2829 10u
3884 3K9
3886 47K
0V
20V
2881 4u7
3713 100K
3714 10K
3715 100K
7812 BC547B
Power-on Reset
for provision only
MP803
2872 100n
3896 10K
MP808
MP805
MP806
MP810
MP811
MP809
MP807
MP804
MP856
MP899
PORE
GND
SRDT
DQSY
uP_CLK
GND
COAX1/IREF/+5
COAX2/KILLR/EBU
GEBU/KILLL
LEFT
GNDA
RIGHT
+5V
GND
+10V
SW_INFO
STR_OUT
SHR_CL
SICL
DATA
SILD
GND
PORE
OE_LATCH
CD-TEXT
BASIC VERSION
DIGout / KILL
1805
to connector board on rear side of module
@ ... for provision only
A
B
C
D
E
F
G
6
7
8
9
10
11
12
13
14
15

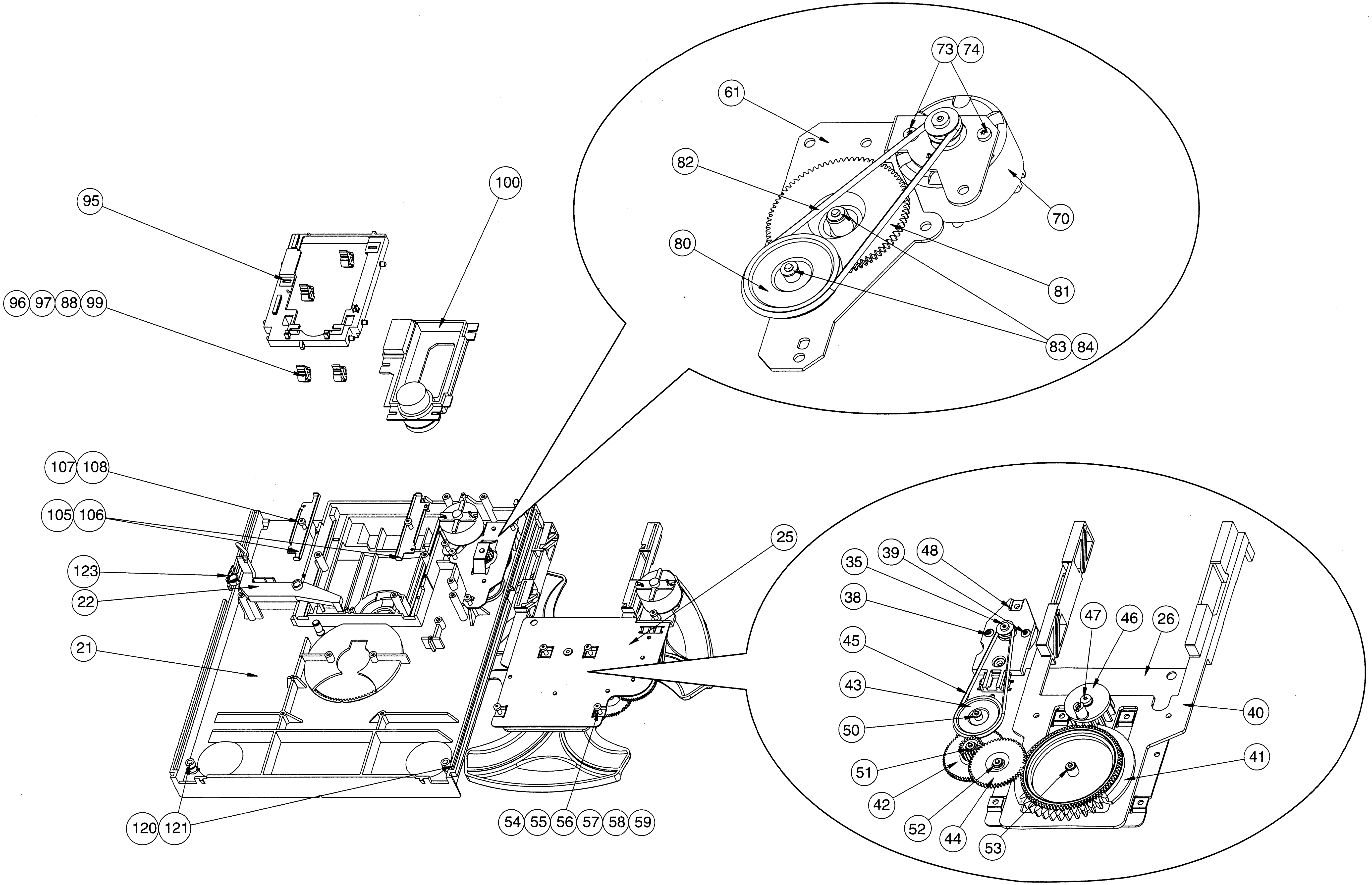
1805	G14
1876	E3
1878	F3
1880	D8
1881	E8
1882	D8
2829	F6
2830	B12
2851	C8
2852	C8
2853	B2
2854	C2
2857	C9
2858	C9
2860	A10
2861	B10
2862	A11
2863	B11
2864	D2
2865	D3
2870	E4
2871	F4
2872	G10
2873	F6
2874	E6
2875	F6
2876	E12
2877	G11
2878	G11
2879	G11
2880	D12
2881	G8
2882	D7
3700	B2
3701	B2
3702	B2
3703	A2
3704	A2
3705	A2
3706	A4
3707	B4
3708	B4
3711	A4
3712	C3
3713	G8
3714	G8
3715	G8
3716	D2
3717	C2
3720	C9
3725	D15
3726	C15
3809	C2
3832	B6
3851	E6
3854	B9
3855	C8
3858	A10
3859	B10
3860	A10
3861	B10
3865	B6
3866	C6
3869	C8
3870	E12
3871	E11
3872	B13
3874	B13
3875	C12
3876	C11
3877	E11
3878	D7
3879	E6
3880	E6
3881	E6
3882	E7
3883	F7
3884	F6
3885	F7
3886	F7
3887	E12
3888	E12
3896	G10
3898	D12
3899	D12
5801	C4
5802	C3
6871	D8
6872	E8
6873	D8
6874	E8
6875	F12
7812	G8
7851	A6
7871	E5
7873	D10
7874	C11
7875	D12
7876	A2
9800	D12
9803	C3
9804	B14
9805	B14
9806	B14
9808	A10
9809	A10
9810	B10
9811	B10
9812	A2
MP801	E12
MP802	D13
MP803	F10
MP804	G13
MP805	F13
MP806	F13
MP807	G13
MP808	F13
MP809	G13
MP810	G13
MP811	F13
MP819	C6
MP822	E4
MP823	E4
MP824	F4
MP825	F4
MP833	C5
MP834	B5
MP835	B5
MP836	C8
MP854	A12
MP856	E13
MP857	B12
MP863	C11
MP865	D12
MP866	D8
MP867	E8
MP868	E8
MP869	C11
MP871	E6
MP880	C9
MP881	A2
MP882	A2
MP883	B2
MP884	B2
MP885	B2
MP886	A4
MP887	B4
MP888	B4
MP889	B4
MP890	C2
MP891	D4
MP892	D4
MP899	F14

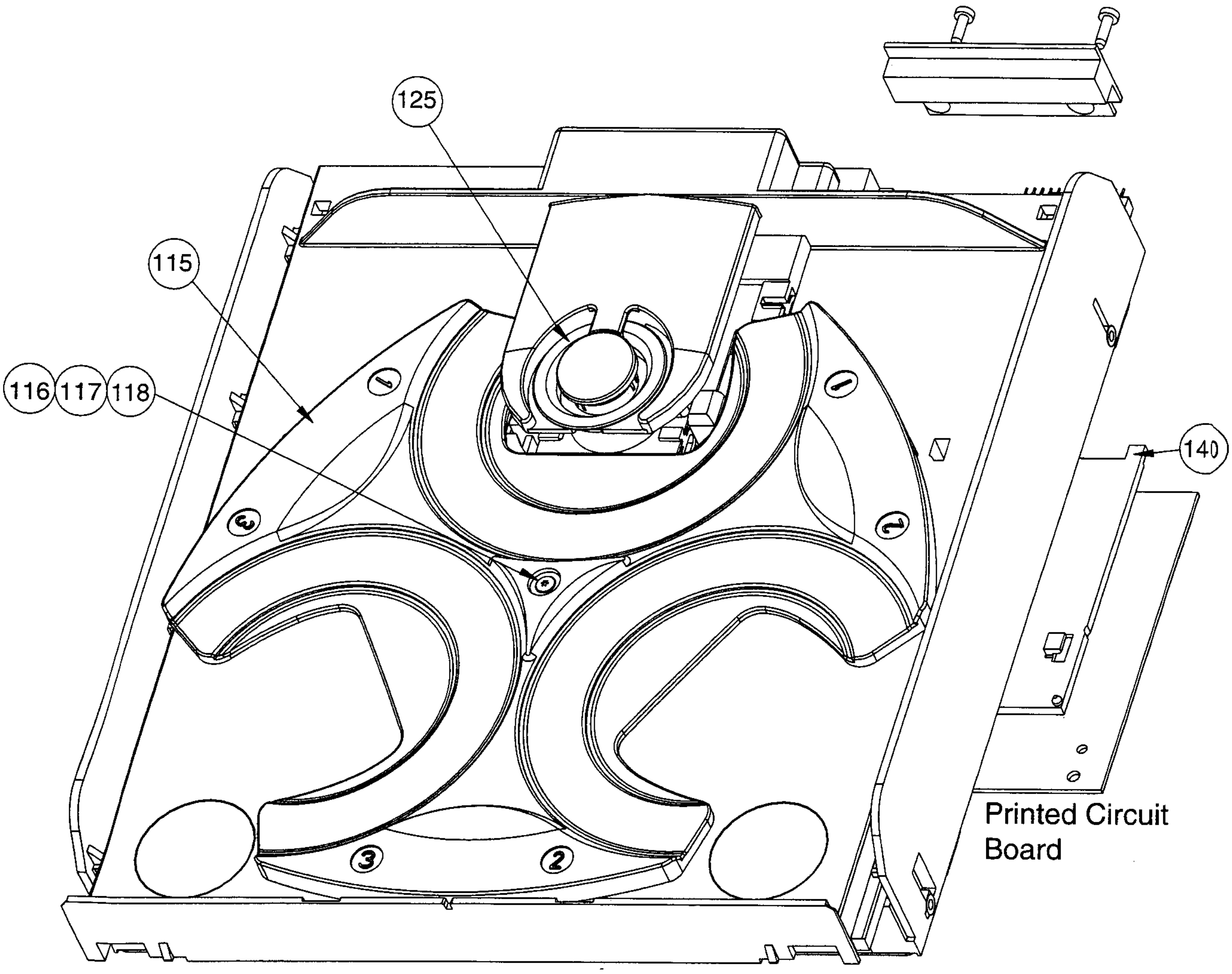
Circuit Diagram Main Board part2


CD-Text circuitry
7876
LC89170M
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
32 x 8
2 PORT
RAM
CPU
INTERF
CRC
CHECK
TIMING & SYNC
PROTECTION
RCK
SUB
SBSY
SFSY
CL4
to
7800
on
part 1
7.35KHz
MP885
4MHz
+4V
3705
47R
9812
MP886 3.8V
3711
10K
MP881
MP882
MP883
MP884
MP887
MP888
MP889
3703 470R
3704 470R
3701 470R
3702 470R
3700 470R
3706 470R
3707 470R
3708 470R
2853
100n
7851
TDA1311
Continuous Calibration DAC
FREQUENCY
DIVIDER
RIGHT
CHANNEL
REGISTER
LEFT
CHANNEL
REGISTER
CONTROL
AND
TIMING
VREF
BCK
WS
DATA
GND
VDD
Vor 8
Vol 6
from
7800
on
part 1
BCK
WS
DACDATA
MP835
MP834
MP833
MP819
3832 470R
3865
3866 470R
470R
GNDA
+5V
100R
3869
4.75V
MP836
2851
100n
2852
470u
3855
15K
MP880
2857
47u
2858
100n
3854
18K
3720
10R
GNDA
only
for TDA1545
IREF
to
1805
2860
10u
2861
10u
3858
22K
3859
22K
470R
3860
470R
3861
2862
2n2
2863
2n2
2830
100n
MP854
MP857
GNDA
SCL
SILD
SDA
MP863
7874
BC547B
3876
220K
MP869
3875
10K
+4V
3872
10K
3874
10K
+4V
+4V
+5V
from
7800
on
part 1
EBU
3809
47R
MP890
3717
1R
2854
100n
2864
47p
3716
120R
EBUGND
9803
5802
TYPE
3712
68R
MP891
MP892
2865
22n
5801
2u2
+5V
COAX1
COAX2
to 1805
EBUGND
digital out circuitry
MP866
1880
3721
470R
2891
22n
10u
2882 @
10K
3878
S
CARR. SW
TRAY SW
CDM-POS
1882
1880
1881
MP866
MP868
MP867
6873
6871
6872
6874
1N4148
to
1801
on
part 1
INNERSW1
INNERSW2
7873
HEF4094BP
VSS
VDD
DATA
SHR_CL
STR_OUT
STR
5V
Os
O7
O6
O5
O4
O3
O2
O1
O0
MP803
2872
100n
7871
TDA7073A
MP822
MP823
MP825
MP824
1876
RF-500TB
2870
100n
1878
RF-500TB
2871
22n
Carrousel-motor
Tray-motor
OUT1-
VDD
0V
20V
MP871 10V
0V
8 0V
2874
22n
3880
330R
3881
10K
3879
10K
3882
47K
3851
3R3
+10V
2873
100n
2875
22n
2829
10u
3884
3883
100K
3885
100K
3886
47K
S
2881
4u7
3713
100K
3715
100K
3714
10K
7812
BC547B
Power-on
Reset
for provision
only
3896
10K
MP865
9800 @
MP802
7875
BC547B
3898
560R
3899
180R
2880
10n
3870
560R
+10V
MP801
3887
220R
6875
BZX79-C5V1
2876
470u
D
S
3877
10K
3871
10K
3888
10K
2877
82p
2878
220p
2879
220p
MP808
MP805
MP806
MP810
MP807
MP804
PORE
to 7800 on part 1
@... fo
1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G

ITEM	OPT_OUT	COAX_OUT
5802	NO	YES
5801	YES	NO
9803	YES	NO
3809	YES	YES
3717	YES	NO
3716	NO	YES
3712	NO	YES
2865	NO	YES
2864	YES	YES
2854	NO	YES

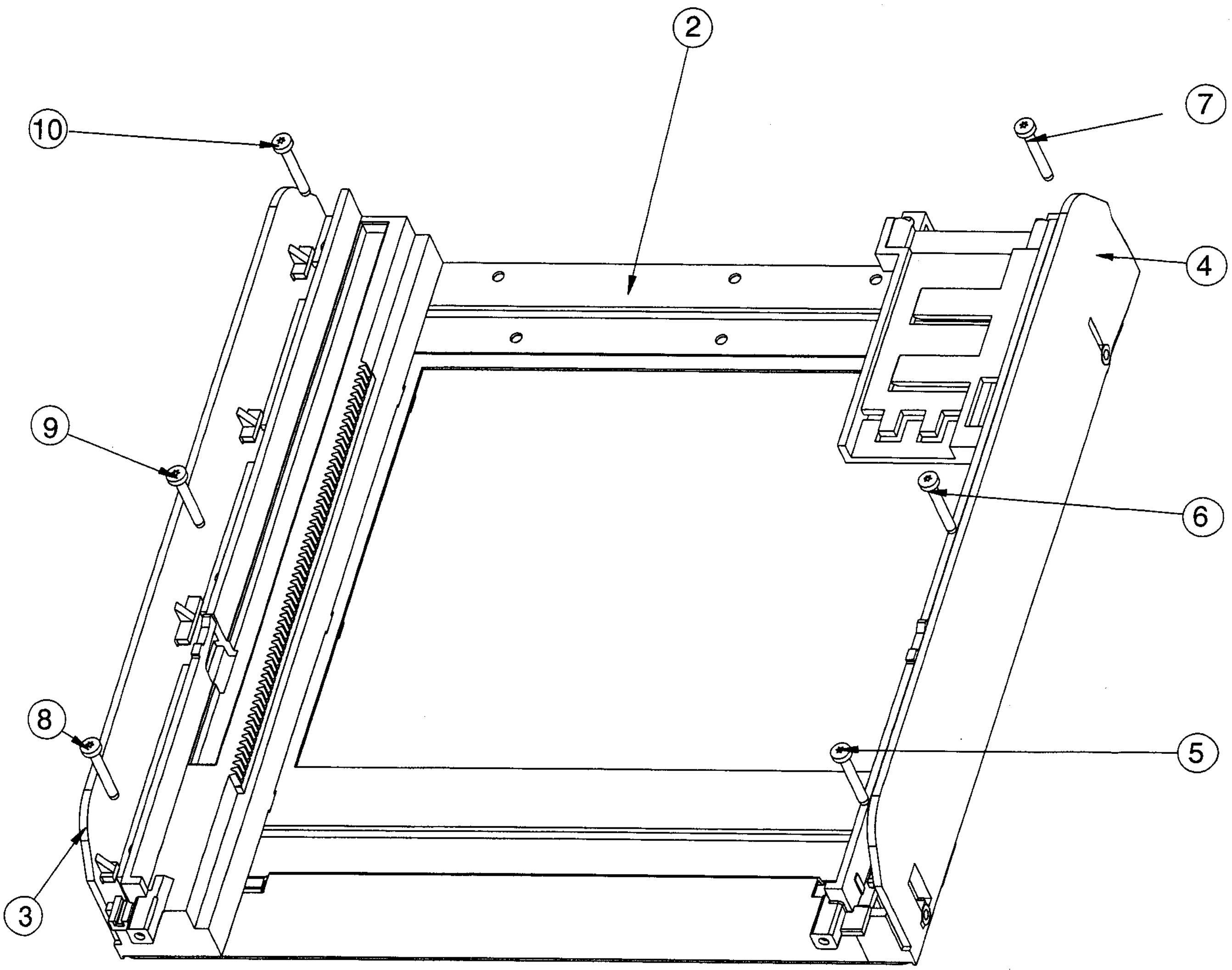
EXPLODED VIEW (3CDC MODULE)


73
74
61
82
70
80
81
83
84
95
100
96
97
88
99
107
108
105
106
123
22
21
25
35
39
48
38
45
43
50
51
42
52
44
53
47
46
26
40
41
120
121
54
55
56
57
58
59



MECHANICAL PARTSLIST 3CDC MODULE

	4822 390 10136	POLYLUB GLY801 (GREASE)
3	4822 463 11008	GUIDE LEFT
4	4822 463 11009	GUIDE RIGHT
21	4822 441 11615	DRAWER
22	4822 402 10088	BRACKET TUMBLER
38	4822 502 12548	SCREW M2,6X3,5
39	4822 502 12548	SCREW M2,6X3,5
40	4822 463 11011	SLIDE
41	4822 522 10509	CONTROL DISC
42	4822 522 10492	GEAR WHEEL
43	4822 528 10937	PULLEY
44	4822 522 10493	IDLER WHEEL
45	4822 358 10115	BELT
46	4822 466 10735	ECCENTRIC GEAR WHEEL
50	4822 532 12364	WASHER
51	4822 532 12364	WASHER
52	4822 532 12364	WASHER
53	4822 532 12364	WASHER
35	4822 361 10753	CARROUSEL MOTOR
70	4822 361 10753	CARROUSEL MOTOR



MECHANICAL PARTSLIST 3CDC MODULE

73	4822 502 12548	SCREW M2,6X3,5
74	4822 502 12548	SCREW M2,6X3,5
80	4822 528 10937	PULLEY
81	4822 522 10494	GEAR DRAWER
82	4822 358 10115	BELT
83	4822 532 12364	WASHER
84	4822 532 12364	WASHER
95	4822 404 10894	SUPPORT
96	4822 325 50215	SUSPENSION
97	4822 325 50215	SUSPENSION
98	4822 325 50215	SUSPENSION
99	4822 325 50215	SUSPENSION
100	4822 691 10615	CD DRIVE VAM1201
115	4822 466 10736	CARROUSEL
117	4822 532 12365	BUSH DRAWER
120	4822 532 51756	GROMMET
121	4822 532 51756	GROMMET
123	4822 402 10085	SWITCH BRACKET
125	4822 401 11708	DISC CLAMP
140	4822 466 10734	PLATE

ELECTRICAL PARTSLIST 3CDC MODULE

MISCELLANEOUS

100	4822 691 10615	CD DRIVE VAM1201
1800	4822 267 51453	FLEX FOIL CONNECTOR 12P
1805	4822 265 10979	FLEX FOIL CONNECTOR 15P
1806	4822 265 10981	FLEX FOIL CONNECTOR 15P
1880	4822 276 13503	SWITCH
1881	4822 276 13503	SWITCH
1882	4822 276 13503	SWITCH

CAPACITORS

2800	4822 126 10053	180pF	10%	50V
2801	4822 122 10466	220pF	10%	50V
2802	4822 126 10053	180pF	10%	50V
2803	4822 122 10466	220pF	10%	50V
2804	4822 126 12787	330pF	10%	50V
2805	4822 122 10466	220pF	10%	50V
2806	4822 122 10466	220pF	10%	50V
2807	4822 126 12878	1,5nF	10%	16V
2808	4822 122 10466	220pF	10%	50V
2809	4822 126 12882	100nF	20%	50V
2810	4822 122 10459	560pF	10%	50V
2811	4822 122 10466	220pF	10%	50V
2812	4822 122 10319	82pF	5%	50V
2813	4822 122 10319	82pF	5%	50V
2814	4822 122 33849	150pF	10%	50V
2815	4822 122 33192	27pF	5%	50V
2817	4822 122 33849	150pF	10%	50V
2819	4822 122 33848	47pF	5%	50V
2820	4822 122 33848	47pF	5%	50V
2821	4822 122 10462	15pF	5%	50V
2822	4822 126 12339	2,2nF	10%	16V
2823	4822 122 33848	47pF	5%	50V
2824	4822 126 11585	22nF	20%	50V
2825	4822 126 12882	100nF	20%	50V
2826	4822 124 23624	470µF	20%	16V
2827	4822 126 12882	100nF	20%	50V
2828	4822 126 12882	100nF	20%	50V
2829	4822 124 41579	10µF	20%	50V
2830	4822 126 12882	100nF	20%	50V
2831	4822 124 41972	4,7µF	20%	50V
2832	4822 124 12032	4,7µF	20%	50V
2835	4822 126 12882	100nF	20%	50V
2837	4822 126 12882	100nF	20%	50V
2838	4822 126 12882	100nF	20%	50V
2839	4822 126 12882	100nF	20%	50V
2840	4822 126 12882	100nF	20%	50V
2841	4822 122 10574	1,2nF	10%	16V
2842	4822 121 51387	10nF	20%	16V
2843	4822 126 12882	100nF	20%	50V
2844	4822 122 10574	1,2nF	10%	16V
2845	4822 121 51387	10nF	20%	16V
2846	4822 126 11585	22nF	20%	50V
2847	4822 126 12882	100nF	20%	50V
2849	4822 126 11585	22nF	20%	50V
2850	4822 122 33197	1nF	10%	50V
2851	4822 126 12882	100nF	20%	50V
2852	4822 124 80857	470µF	20%	16V
2856	4822 122 33848	47pF	5%	50V
2859	4822 126 12882	100nF	20%	50V
2860	4822 124 41579	10µF	20%	50V
2861	4822 124 41579	10µF	20%	50V
2862	4822 126 12339	2,2nF	10%	16V
2863	4822 126 12339	2,2nF	10%	16V
2866	4822 126 12882	100nF	20%	50V
2867	4822 122 33848	47pF	5%	50V

CAPACITORS

2868	4822 126 12882	100nF	20%	50V
2869	4822 126 12882	100nF	20%	50V
2870	4822 126 12882	100nF	20%	50V
2871	4822 126 11585	22nF	20%	50V
2872	4822 126 12882	100nF	20%	50V
2873	4822 126 12882	100nF	20%	50V
2874	4822 126 11585	22nF	20%	50V
2875	4822 126 11585	22nF	20%	50V
2876	4822 124 80857	470µF	20%	16V
2877	4822 122 10319	82pF	5%	50V
2878	4822 122 10466	220pF	10%	50V
2879	4822 122 10466	220pF	10%	50V
2880	4822 121 51387	10nF	20%	16V
2884	4822 126 12882	100nF	20%	50V
2887	4822 126 12882	100nF	20%	50V
2891	4822 124 23179	10µF	20%	16V

RESISTORS

3703	4822 116 83883	470Ω	5%	0,16W
3720	4822 116 52176	10Ω	5%	0,5W
3721	4822 116 83883	470Ω	5%	0,5W
3725	4822 116 83864	10kΩ	5%	0,5W
3726	4822 116 83864	10kΩ	5%	0,5W
3800	4822 116 52239	120kΩ	5%	0,5W
3801	4822 116 83864	10kΩ	5%	0,5W
3802	4822 116 52239	120kΩ	5%	0,5W
3803	4822 116 83864	10kΩ	5%	0,5W
3804	4822 116 52291	56kΩ	5%	0,5W
3805	4822 116 83864	10kΩ	5%	0,5W
3806	4822 116 83864	10kΩ	5%	0,5W
3807	4822 116 83864	10kΩ	5%	0,5W
3808	4822 116 83864	10kΩ	5%	0,5W
3810	4822 050 11002	1kΩ	5%	0,2W
3812	4822 116 83884	47kΩ	5%	0,16W
3813	4822 116 83864	10kΩ	5%	0,5W
3816	4822 116 52269	3,3kΩ	5%	0,5W
3817	4822 116 83961	6,8kΩ	5%	0,16W
3818	4822 116 83864	10kΩ	5%	0,5W
3819	4822 116 83883	470Ω	5%	0,16W
3820	4822 116 52269	3,3kΩ	5%	0,5W
3821	4822 116 52269	3,3kΩ	5%	0,5W
3822	4822 116 52257	22kΩ	5%	0,5W
3823	4822 116 52269	3,3kΩ	5%	0,5W
3824	4822 116 52269	3,3kΩ	5%	0,5W
3825	4822 050 11002	1kΩ	5%	0,2W
3826	4822 116 52257	22kΩ	5%	0,5W
3827	4822 116 52278	390kΩ	5%	0,5W
3828	4822 116 52257	22kΩ	5%	0,5W
3830	4822 116 52235	1MΩ	5%	0,5W
3831	4822 116 52257	22kΩ	5%	0,5W
3832	4822 116 83883	470Ω	5%	0,16W
3833	4822 116 83864	10kΩ	5%	0,5W
3834	4822 116 52283	4,7kΩ	5%	0,5W
3837	4822 050 11002	1kΩ	5%	0,2W
3838	4822 050 11002	1kΩ	5%	0,2W
3839	4822 116 52245	150kΩ	5%	0,16W
3840	4822 116 52245	150kΩ	5%	0,16W
3841	4822 116 83961	6,8kΩ	5%	0,16W
3842	4822 116 83864	10kΩ	5%	0,5W
3843	4822 116 52303	8,2kΩ	5%	0,5W
3844	4822 116 83883	470Ω	5%	0,16W
3845	4822 116 83864	10kΩ	5%	0,5W
3846	4822 116 52303	8,2kΩ	5%	0,5W

ELECTRICAL PARTSLIST 3CDC MODULE

RESISTORS

3847	4822 116 83883	470Ω	5%	0,16W
3848	4822 116 52303	8,2kΩ	5%	0,5W
3849	4822 116 52303	8,2kΩ	5%	0,5W
3850	4822 116 83883	470Ω	5%	0,16W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10338	3,3Ω		NFR25
3853	4822 052 10338	3,3Ω		NFR25
3856	4822 116 80176	1Ω	5%	0,5W
3857	4822 050 11002	1kΩ	5%	0,2W
3858	4822 116 52257	22kΩ	5%	0,5W
3859	4822 116 52257	22kΩ	5%	0,5W
3860	4822 116 83883	470Ω	5%	0,16W
3861	4822 116 83883	470Ω	5%	0,16W
3862	4822 116 52175	100Ω	5%	0,5W
3863	4822 116 52175	100Ω	5%	0,5W
3864	4822 116 52175	100Ω	5%	0,5W
3865	4822 116 83883	470Ω	5%	0,16W
3866	4822 116 83883	470Ω	5%	0,16W
3867	4822 116 52234	100kΩ	5%	0,5W
3869	4822 116 52175	100Ω	5%	0,5W
3870	4822 116 52226	560Ω	5%	0,5W
3871	4822 116 83864	10kΩ	5%	0,5W
3872	4822 116 83864	10kΩ	5%	0,5W
3873	4822 116 83883	470Ω	5%	0,16W
3874	4822 116 83864	10kΩ	5%	0,5W
3875	4822 116 83864	10kΩ	5%	0,5W
3876	4822 116 83874	220kΩ	5%	0,5W
3877	4822 116 83864	10kΩ	5%	0,5W
3878	4822 116 83864	10kΩ	5%	0,5W
3879	4822 116 83864	10kΩ	5%	0,5W
3880	4822 116 52219	330Ω	5%	0,5W
3881	4822 116 83864	10kΩ	5%	0,5W
3882	4822 116 83884	47kΩ	5%	0,16W
3883	4822 116 52234	100kΩ	5%	0,5W
3884	4822 116 52276	3,9kΩ	5%	0,5W
3885	4822 116 52234	100kΩ	5%	0,5W
3886	4822 116 83884	47kΩ	5%	0,16W
3887	4822 052 10221	220Ω	5%	
3888	4822 116 83864	10kΩ	5%	0,5W
3889	4822 116 83883	470Ω	5%	0,16W
3890	4822 116 83883	470Ω	5%	0,16W
3891	4822 116 52272	330kΩ	5%	0,5W
3893	4822 116 52257	22kΩ	5%	0,5W
3894	4822 116 52191	33Ω	5%	0,5W
3895	4822 116 52176	10Ω	5%	0,5W
3896	4822 116 83864	10kΩ	5%	0,5W
3897	4822 116 52226	560Ω	5%	0,5W
3898	4822 116 52226	560Ω	5%	0,5W
3899	4822 116 52213	180Ω	5%	0,5W

COILS

1810	4822 242 73557	CERAMIC RES. 8,46MHz

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-B5V1

TRANSISTORS

7808	4822 130 41344	BC337-40
7874	4822 130 40959	BC547B
7875	4822 130 40959	BC547B

INTEGRATED CIRCUITS

7800©	4822 209 12752	SAA7378GP
7801©	5322 209 11517	PC74HCU04T
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7873	5322 209 10421	HEF4094BP

Philips Consumer Service GmbH
Colonia-Allee 11, 51067 Köln
Tel.: 0221/96960-0, Fax: 0221/96960-809

PHILIPS

PHILIPS

Art. Code: 53
Sachgebiet: AUDIO MIDI ANLAGEN
Memo: DE10WEG

SI

Wichtig für die Werkstatt!
Nummer: 53050
Datum: 26.01.98

Service Information

Betrifft: Gerätetypen siehe unten

Verteiler: S d F 1

5157
5166
5151
5136
830
5202
5165
5164

GERÄTETYPEN: AS670C, AS675C, AS785C, FW315C, FW340C, FW355C, FW365C, FW373C, FW375P, FW385P, FW710C, FW725C, FW730C, FW745C, FW750C, FW770P, FW780P, FW790P

5172
5179
5152
783
5178

ÄNDERUNG IN DER ERSATZTEILLISTE FÜR DAS CDC- 3 WECHSLER MODUL

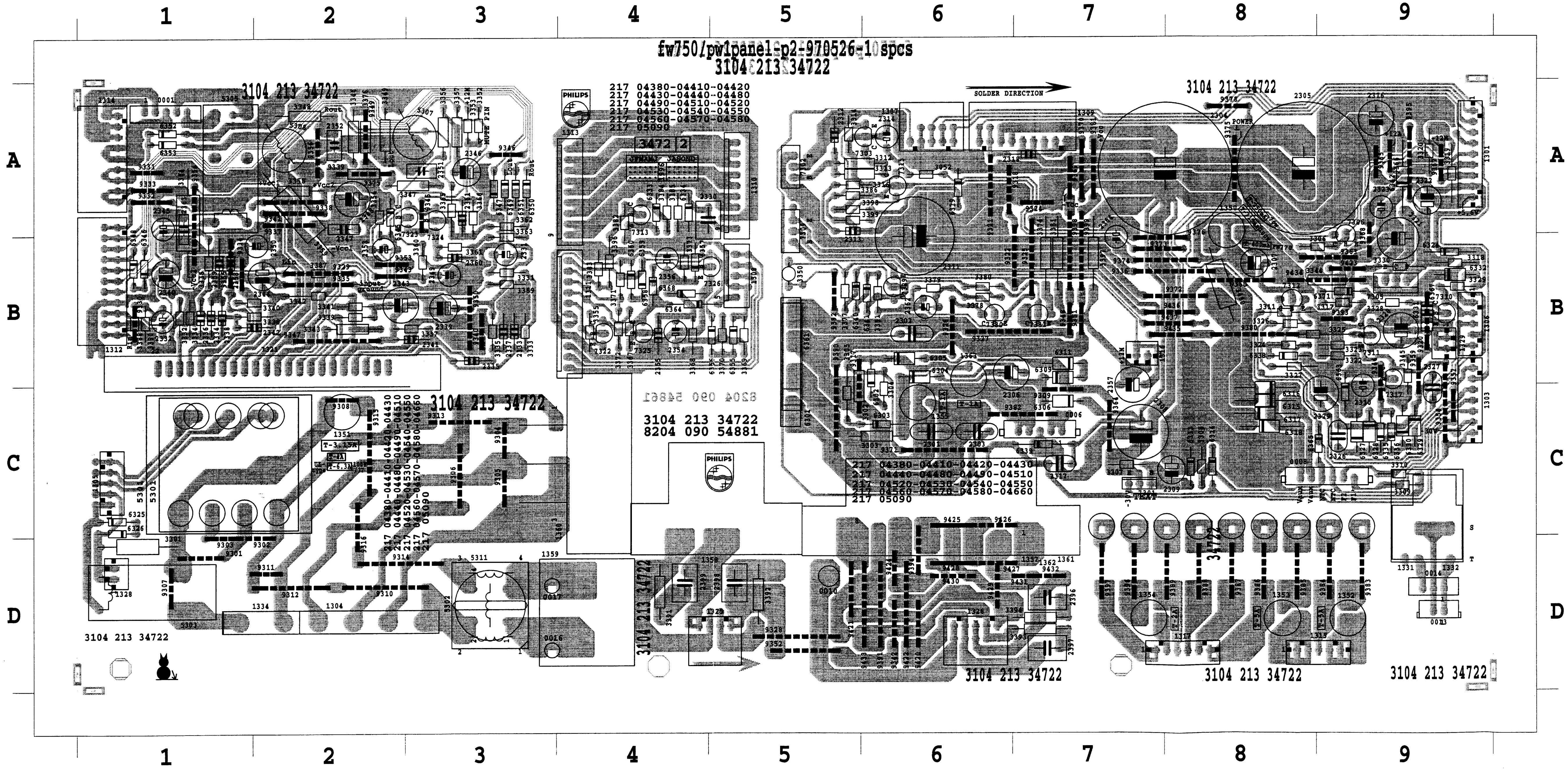
Auf der Seite 10 - 12 im Service Manual der oben genannten Geräte ist die Service Code Nummer für die flexfoil 17p genannt.
Das 17- polige Kabel wird für dieses Modul nicht benötigt.
Das korrekte Kabel ist ein 15- poliges Kabel. Das 15- polige Kabel ist auf der Seite 10 - 14 im Service Manual unter der Pos.- Nr.: 8002 und mit der Bestellnummer 4822 320 11313 genannt.

Diese Ersatzteilkorrektur betrifft nur das ältere CDC-3 Wechsler Modul, das mit dem Platinenaufdruck 3104 113 3109x versehen ist !

Nachdruck nicht gestattet! Änderungen vorbehalten.

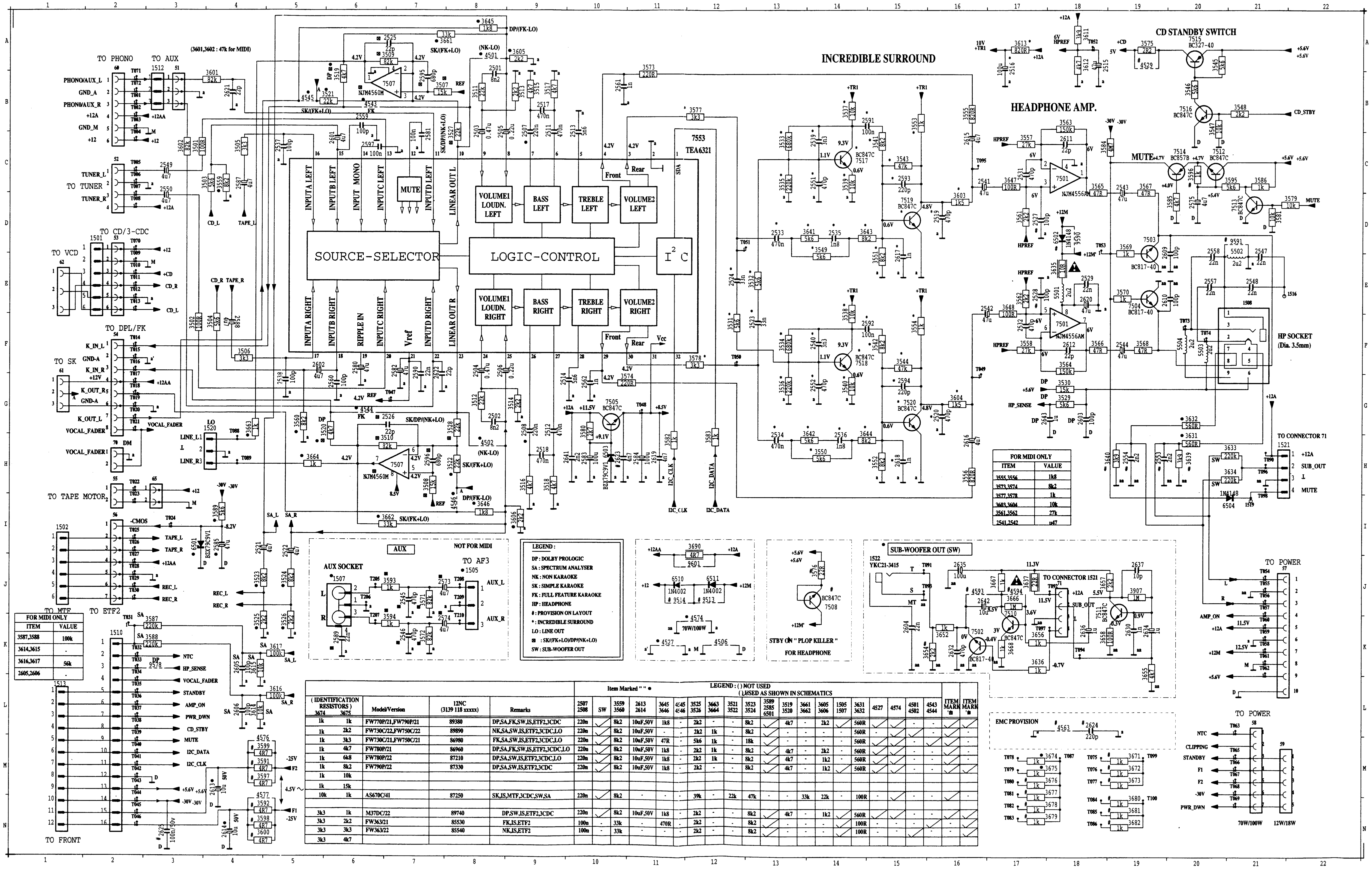
POWER 1 COMPONENT LAYOUT

0001	A 1
0006	C 7
0008	C 9
0010	D 5
0013	D 9
0014	D 9
0016	D 3
0017	D 3
0107	C 9
0108	C 9
0109	C 8
0110	C 8
0111	C 8
0112	C 8
0113	C 8
0114	C 7
0115	C 7
0301	C 1
0302	C 1
0303	C 1
0304	C 2
0306	C 2
0307	C 1
0308	C 1
0315	C 2
0319	C 1
1301	A 9
1303	C 9
1304	D 2
1305	C 1
1306	B 9
1307	A 6
1308	B 5
1309	A 7
1310	A 5
1311	B 4
1312	B 1
1313	A 4
1314	A 1
1315	D 9
1316	B 7
1317	D 8
1325	D 5
1326	D 6
1328	D 1
1329	B 9
1331	D 9
1332	D 9
1334	D 2
1350	A 8
1351	C 2
1352	D 9
1353	D 8
1354	D 7
1355	C 6
1357	D 6
1358	D 5
1359	D 4
1360	C 3
1361	D 6
1362	D 6
1363	B 6
2301	C 6
2302	B 6
2303	C 6
2304	A 7
2305	A 8
2306	B 6
2307	B 8
2308	C 7
2309	C 8
2310	C 9
2311	B 6
2312	A 5
2313	A 5
2314	A 6
2316	A 9
2317	C 7
2318	A 7
2321	B 9
2322	A 9
2323	A 9
2326	C 9
2327	C 9
2328	B 9
2329	C 9
2330	A 4
2331	B 3
2332	B 1
2333	B 3
2334	B 1
2335	B 3
2336	B 1
2337	B 3
2338	B 1
2339	B 3
2340	B 1
2341	B 3
2342	B 2
2343	B 2
2344	B 2
2345	A 1
2346	A 3
2347	A 2
2348	A 2
2349	B 3
2350	B 2
2351	A 3
2352	A 2
2353	B 2
2354	B 4
2355	B 4
2356	B 4
2357	C 7
2358	B 1
2359	B 1
2360	B 3
2361	A 3
2362	B 6
2363	A 1
2364	B 7
2396	D 7
2397	D 7
2398	D 5
2399	D 4
3052	A 6
3301	D 1
3302	C 5
3303	C 6
3304	C 6
3305	C 5
3306	B 9
3307	C 7
3308	C 8
3309	C 9
3310	C 9
3311	B 8
3312	A 5
3313	A 5
3314	A 5
3316	A 5
3317	B 9
3318	B 9
3319	A 9
3320	A 9
3322	B 9
3323	B 9
3324	B 8
3325	B 8
3326	B 8
3327	B 8
3328	B 9
3329	B 9
3330	B 9
3331	B 3
3332	B 1
3333	B 3
3334	B 1
3335	B 3
3336	B 1
3337	B 3
3338	B 2
3339	B 2
3340	B 2
3341	B 2
3342	B 2
3343	B 2
3344	B 9
3345	B 9
3346	A 2
3347	A 3
3348	A 2
3349	A 2
3350	B 5
3351	B 6
3352	A 3
3353	A 3
3354	A 2
3355	B 4
3356	A 3
3357	A 3
3358	A 2
3359	A 2
3360	B 3
3361	B 3
3362	A 3
3363	B 3
3364	A 1
3365	A 3
3366	A 3
3367	B 4
3368	B 4
3369	B 5
3370	B 5
3371	B 4
3372	B 4
3373	B 4
3374	B 7
3375	A 2
3376	A 2
3377	B 5
3378	B 6
3379	B 6
3380	B 6
3381	B 7
3382	A 4
3383	B 4
3384	A 4
3385	A 4
3386	A 5
3387	B 2
3388	B 1
3389	B 3
3390	B 1
3391	D 4
3392	D 5
3393	D 7
3394	D 7
3396	B 4
3397	B 7
3398	A 5
3399	A 5
3480	B 8
5302	D 3
5303	D 1
5305	A 1
5307	A 3
5308	A 2
5311	D 3
6301	B 5
6302	B 6
6303	C 6
6304	B 6
6305	B 6
6306	C 7
6309	B 7
6311	B 7
6313	C 8
6314	C 8
6315	C 8
6316	C 8
6317	C 8
6318	C 8
6319	A 6
6324	B 9
6325	C 1
6326	C 1
6327	C 9
6328	C 9
6329	C 9
6330	C 9
6331	B 9
6332	B 9
6333	A 4
6334	A 4
6335	C 9
6336	C 9
6338	B 8
6339	C 7
6340	B 5
6341	B 6
6342	A 9
6345	A 2
6346	B 1
6347	A 3
6348	B 1
6349	A 3
6350	A 3
6351	A 3
6352	A 1
6353	A 1
6355	B 5
6356	B 5
6357	B 4
6358	B 4
6359	B 4
6360	B 4
6361	B 5
6363	C 9
6364	B 4
6365	C 9
6367	B 9
6368	B 4
6371	B 9
7301	C 7
7302	A 5
7303	A 6
7305	B 9
7306	B 9
7309	A 5
7310	B 9
7311	B 9
7312	B 8
7313	A 4
7315	A 6
7317	B 9
7321	B 2
7322	B 4
7323	A 3
7324	A 3
7325	B 4
7326	B 5
7329	B 6
7330	B 6
7331	B 7
9301	D 1
9302	D 1
9303	D 1
9304	C 3
9305	C 3
9306	C 3
9307	D 1
9308	C 2
9309	C 7
9310	D 2
9311	D 2
9312	D 2
9313	C 3
9314	D 2
9315	C 2
9316	C 2
9317	C 5
9318	A 6
9320	B 9
9321	A 6
9322	B 7
9324	A 7
9325	B 7
9326	B 6
9327	B 6
9328	D 5
9329	B 2
9330	B 1
9331	A 1
9332	A 1
9333	A 1
9334	B 1
9335	B 2
9336	B 8
9337	A 2
9338	A 2
9339	A 2
9340	B 3
9341	A 2
9342	D 6
9343	B 2
9344	B 9
9345	A 3
9346	A 3
9347	B 2
9348	B 7
9349	A 2
9350	B 3
9351	B 7
9352	D 5
9353	B 2
9354	A 1
9355	B 1
9356	A 2
9357	C 9
9358	C 9
9359	B 9
9360	B 8
9363	B 9
9364	C 7
9365	A 9
9366	A 9
9367	A 9
9368	B 9
9369	A 7
9370	A 7
9371	C 6
9372	B 8
9373	B 7
9374	B 8
9375	A 8
9376	B 7
9378	A 8
9380	B 8
9381	A 7
9382	C 7
9383	D 9
9384	D 9
9385	D 8
9386	D 8
9387	D 8
9388	D 8
9389	D 8
9390	C 5
9391	D 6
9392	B 5
9393	B 9
9394	D 6
9395	A 9
9396	D 7
9397	D 7
9398	B 7
9399	B 7
9420	D 6
9421	D 5
9422	D 6
9423	B 9
9424	D 6
9425	C 6
9426	C 6
9427	D 6
9428	D 6
9429	D 6
9430	D 6
9431	D 7
9432	D 7
9433	D 6
9434	B 9
9435	B 8
9436	B 8
9437	B 8



AF3 CIRCUIT

1501	D 2
1502	I 1
1505	J 8
1507	J 6
1508	E21
1510	K 2
1512	A 3
1513	L 1
1516	E21
1519	I21
1520	G 4
1521	H21
1522	J15
2501	A 8
2502	G 8
2503	B 8
2504	F 8
2505	B 8
2506	F 8
2507	B 9
2508	G 9
2511	B 9
2512	G 9
2513	B10
2514	G 9
2515	A18
2516	A17
2517	B 9
2518	H 9
2519	D16
2520	G16
2521	I 4
2522	I 5
2523	F13
2524	E12
2525	A 7
2526	G 7
2527	D17
2528	E17
2529	E18
2531	C17
2532	F17
2533	D13
2534	H13
2535	D14
2536	H14
2537	C 5
2538	G 5
2539	C14
2540	F14
2541	C16
2542	E16
2543	C19
2544	F19
2545	J 7
2546	K 7
2547	D21
2548	E21
2549	C 3
2550	C 3
2551	C14
2552	G14
2553	H19
2554	H19
2557	E20
2558	D20
2559	B 6
2560	G 6
2561	B10
2562	G10
2573	J 7
2574	K 7
2575	D20
2580	F 6
2581	C 7
2582	F 7
2583	H10
2584	H11
2585	I 4
2587	C 4
2588	F 4
2589	K 6
2590	F 7
2591	B15
2592	F15
2593	C15
2594	G15
2595	B 7
2596	H 7
2597	C 6
2601	C 6
2602	F 5
2603	G18
2604	K15
2605	K 4
2606	L 4
2609	D19
2610	E19
2611	C18
2612	F18
2613	M 4
2614	N 4
2615	C16
2616	H16
2617	E15
2618	H15
2619	H11
2620	E18
2621	B 4
2622	F 7
2623	H10
2624	L18
2625	N 3
2630	K19
2632	K16
2634	K19
2635	J16
2636	K18
2637	J19
2641	H10
2642	J16
2643	G17
3501	C 3
3502	F 3
3503	C 4
3504	F 4
3505	C 4
3506	F 4
3507	B 7
3508	H 7
3509	A 7
3510	H 7
3511	B 8
3512	G 8
3513	B 9
3514	G 9
3515	B 9
3516	H 9
3517	B 9
3518	H 9
3519	B 6
3520	G 6
3521	B 6
3522	H 8
3523	J 4
3524	J 5
3525	K 4
3526	K 5
3527	C 8
3528	G 8
3529	G18
3530	G18
3531	F12
3532	E13
3533	C13
3534	F13
3535	C13
3536	G13
3537	B14
3538	F14
3539	C14
3540	G14
3541	C15
3542	F15
3543	C15
3544	F15
3545	A20
3546	B20
3547	B20
3548	B21
3549	D14
3550	H14
3551	E15
3552	H15
3553	B15
3554	F15
3555	B16
3556	H16
3557	C17
3558	F17
3559	C 4
3560	G 5
3561	D17
3562	E17
3563	B18
3564	F18
3565	C18
3566	F18
3567	C19
3568	F19
3569	D19
3570	E19
3571	J 7
3572	K 7
3573	A11
3574	G11
3575	A19
3576	J14
3577	B12
3578	F12
3579	D22
3580	G10
3581	D21
3582	H11
3583	H12
3584	C18
3585	D20
3586	C21
3587	K 3
3588	K 3
3589	I 4
3591	M 5
3592	N 5
3593	J 7
3594	K 7
3595	C21
3596	C20
3597	M 5
3598	N 5
3599	M 5
3600	N 5
3601	B 4
3602	C 3
3603	D16
3604	G16
3605	A 9
3606	I 9
3611	A18
3612	A18
3613	A17
3614	L 4
3615	K 4
3616	L 5
3617	K 5
3631	H20
3632	G20
3633	H21
3634	H21
3635	E18
3636	K17
3637	J17
3639	H20
3640	H19
3641	D14
3642	H14
3643	D14
3644	H14
3645	A 8
3646	I 8
3647	C17
3648	E17
3652	K16
3654	K16
3655	K19
3656	K17
3657	J18
3658	K18
3661	A 8
3662	I 7
3663	G 4
3664	H 5
3666	J17
3667	J17
3668	K17
3671	M19
3672	M19
3673	M19
3674	M18
3675	M18
3676	M18
3677	M18
3678	N18
3679	N18
3680	N19
3681	N19
3682	N19
3690	I12
3907	J19
4501	A 8
4502	H 8
4506	K12
4527	K11
4529	A19
4543	B 6
4544	G 6
4545	B 5
4546	I 8
4563	L18
4574	K12
4576	M 4
4577	N 4
4593	J16
4594	J17
51	A 3
52	C 2
53	D 2
54	F 2
55	H 2
5501	E18
5502	D21
5503	F20
5504	F20
56	I 2
57	J21
58	L21
59	M21
60	A 2
61	F 1
62	E 1
65	H 3
6501	I 3
6502	D18
6503	H10
6504	I21
6510	J11
6511	J12
70	H 2
71	J18
7501	C18
7501	F18
7502	K16
7503	D19
7504	E19
7505	G10
7507	B 6
7507	H 7
7508	J14
7510	J17
7511	K18
7512	C20
7513	D21
7514	C20
7515	A20
7516	B20
7517	C15
7518	F15
7519	D15
7520	G15
7553	C12
9513	J12
9514	J11
9578	K 3
9590	D18
9591	D21
9601	J12


(3601,3602 : 47k for MIDI)
TO PHONO
TO AUX
PHONO/AUX_L
GND_A
PHONO/AUX_R
+12A
GND_M
+12
TO TUNER
TUNER_L
TUNER_R
TO CD/3-CDC
TO VCD
+CD
CD_R
CD_L
TO DPL/FK
TO SK
K_IN_L
GND-A
K_IN_R
K_OUT_R
K_OUT_L
VOCAL_FADER
LINE_L1
LINE_R1
TO TAPE MOTOR
-CMOS
TAPE_L
TAPE_R
REC_L
REC_R
TO MTF
TO ETF2
NTC
HP_SENSE
STANDBY
AMP_ON
PWR_DWN
CD_STBY
MUTE
I2C_DATA
I2C_CLK
TO FRONT
SOURCE-SELECTOR
LOGIC-CONTROL
I2C
INPUTA LEFT
INPUTB LEFT
INPUT MONO
INPUTC LEFT
MUTE
INPUTD LEFT
LINEAR OUT L
VOLUME1 LOUDN. LEFT
BASS LEFT
TREBLE LEFT
VOLUME2 LEFT
INPUTA RIGHT
INPUTB RIGHT
RIPPLE IN
INPUTC RIGHT
Vref
INPUTD RIGHT
LINEAR OUT R
VOLUME1 LOUDN. RIGHT
BASS RIGHT
TREBLE RIGHT
VOLUME2 RIGHT
Front
Rear
SDA
Vcc
7553
TEA6321
7507
NJM4560M
INCREDIBLE SURROUND
HEADPHONE AMP.
CD STANDBY SWITCH
7515
BC327-40
CD_STBY
MUTE
7501
NJM4556AM
HP SOCKET
(Dia. 3.5mm)
TO CONNECTOR 71
SUB_OUT
TO POWER
AUX
NOT FOR MIDI
AUX SOCKET
TO AF3
AUX_L
AUX_R
STBY ON " PLOP KILLER "
FOR HEADPHONE
SUB-WOOFER OUT (SW)
YKC21-3415
TO CONNECTOR 1521
EMC PROVISION
CLIPPING
70W/100W
12W/18W

LEGEND :

DP : DOLBY PROLOGIC
SA : SPECTRUM ANALYSER
NK : NON KARAOKE
SK : SIMPLE KARAOKE
FK : FULL FEATURE KARAOKE
HP : HEADPHONE
: PROVISION ON LAYOUT
* : INCREDIBLE SURROUND
LO : LINE OUT
⊠ : SK/(FK+LO)/DP/(NK+LO)
SW : SUB-WOOFER OUT

FOR MIDI ONLY	
ITEM	VALUE
3587,3588	100k
3614,3615	-
3616,3617	56k
2605,2606	-

FOR MIDI ONLY	
ITEM	VALUE
3555,3556	1k8
3573,3574	8k2
3577,3578	1k
3603,3604	10k
3561,3562	27k
2541,2542	u47

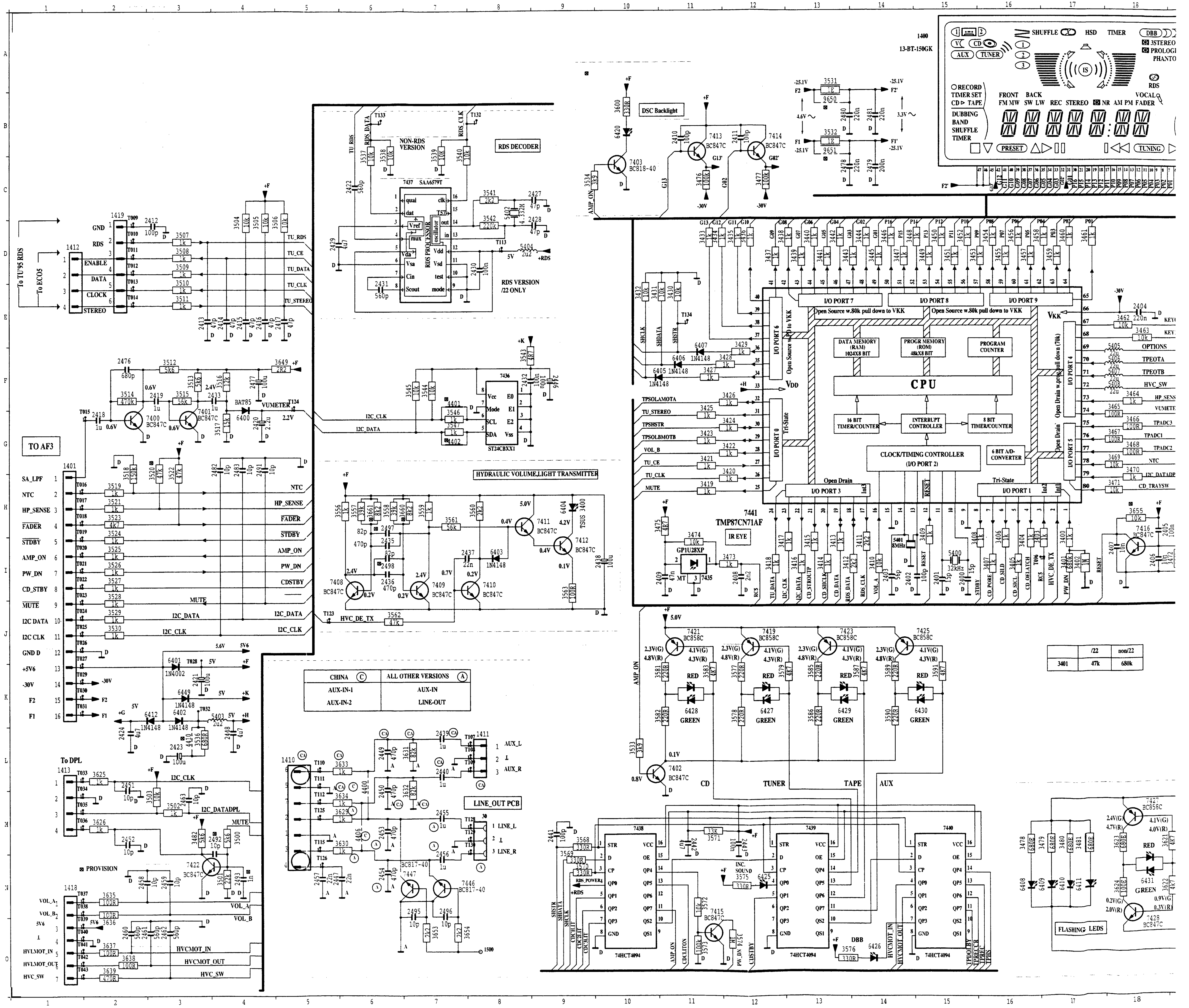
Item Marked " " ●

LEGEND : ( ) NOT USED
(✓) USED AS SHOWN IN SCHEMATICS

(IDENTIFICATION RESISTORS) 3674	3675	Model/Version	12NC (3139 118 xxxxx)	Remarks	2507 2508	SW	3559 3560	2613 2614	3645 3646	4545 4546	3525 3526	3663 3664	3521 3522	3523 3524	3589 2585 6501	3519 3520	3661 3662	3605 3606	1505 1507	3631 3632	4527	4574	4501 4502	4543 4544	ITEM MARK '⊠'	ITEM MARK '■'
1k	1k	FW770P/21,FW790P/21	89380	DP,SA,FK,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	2k2	✓	560R	✓	✓	-	-	✓	✓
1k	2k2	FW730C/22,FW750C/22	89890	NK,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	-	-	2k2	1k	-	8k2	✓	-	-	-	-	560R	-	✓	✓	-	✓	-
1k	3k3	FW730C/21,FW750C/21	86980	FK,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	47R	-	5k6	1k	-	18k	✓	-	-	-	-	560R	✓	✓	-	✓	✓	-
1k	4k7	FW780P/21	86960	DP,SA,FK,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	1k8	-	2k2	1k	-	8k2	✓	4k7	-	2k2	-	560R	✓	✓	-	-	✓	-
1k	6k8	FW780P/22	87210	DP,SA,SW,IS,ETF2,3CDC,LO	220n	✓	8k2	10uF,50V	1k8	-	2k2	1k	-	8k2	✓	4k7	-	1k2	-	560R	✓	✓	-	-	✓	-
1k	8k2	FW790P/22	87330	DP,SA,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	1k2	✓	560R	✓	✓	-	-	✓	✓
1k	10k																									
1k	15k																									
10k	1k	AS670C/41	87250	SK,IS,MTF,3CDC,SW,SA	220n	✓	8k2	-	-	-	39k	-	22k	47k	-	-	33k	22k	-	100R	-	✓	-	-	✓	-
3k3	1k	M37DC/22	89740	DP,SW,IS,ETF2,3CDC	220n	✓	8k2	10uF,50V	1k8	-	2k2	-	-	8k2	✓	4k7	-	1k2	✓	560R	✓	✓	-	-	✓	✓
3k3	2k2	FW363/21	85530	FK,IS,ETF2	100n	-	33k	-	470R	-	2k2	-	-	8k2	✓	-	-	-	✓	100R	-	-	-	✓	-	✓
3k3	3k3	FW363/22	85540	NK,IS,ETF2	100n	-	33k	-	-	-	2k2	-	-	8k2	✓	-	-	-	✓	100R	-	-	✓	-	-	✓
3k3	4k7																									

FRONT CIRCUIT *(HVC VERSION)*

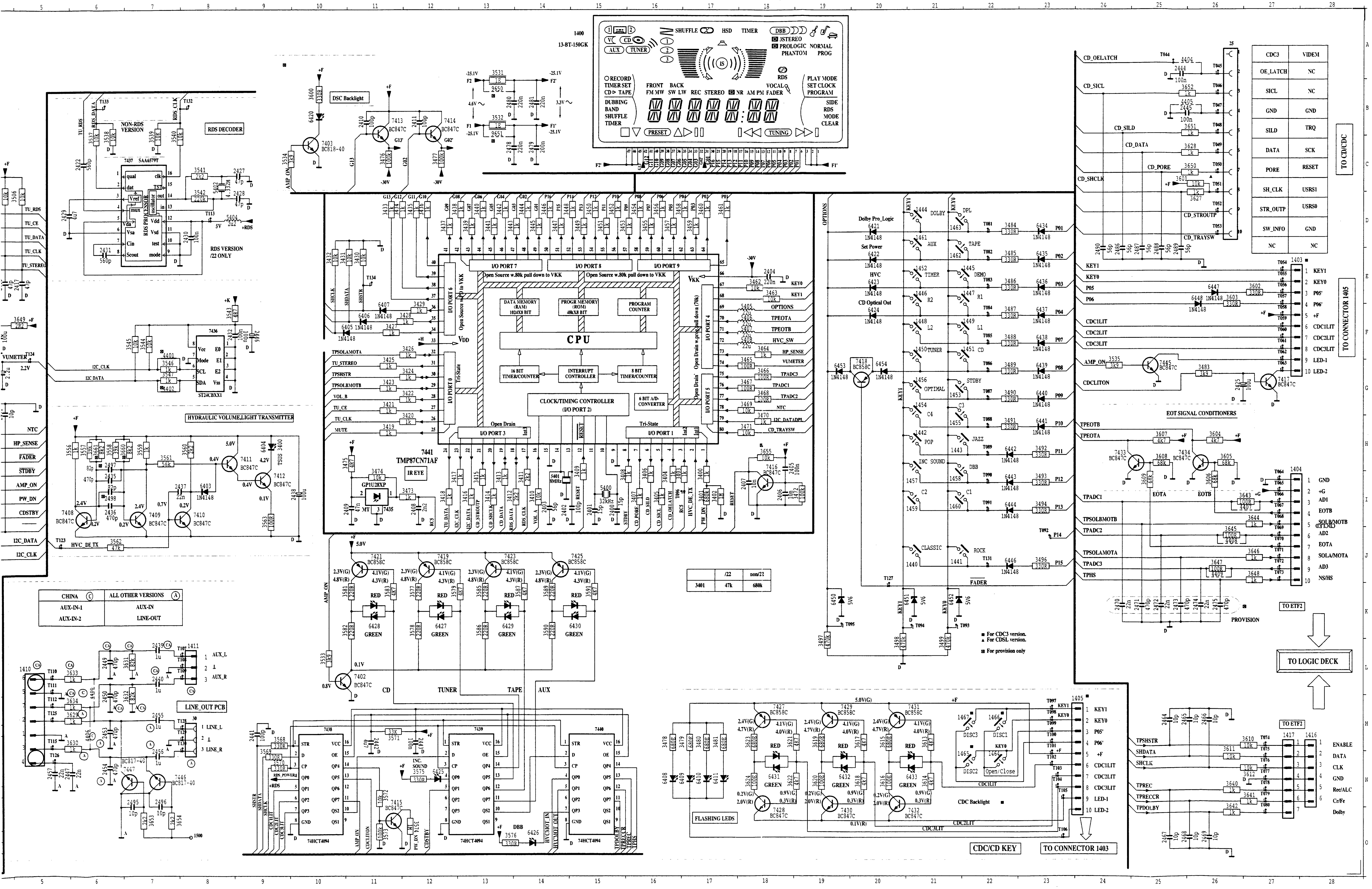
1400	A15	1419	C 2	1451	F22	1463	D21	2406	I18	2418	F 2	2431	E 6	2444	A25	2456	M 7	2468	O25	2480	B13	2495	N 7	3406	I16	3418	I12	3430	E11	3442	D13	3454	D16	3466	G18	3478	M16	3490	G22	3503	M 3	3515	F 3	3527	I 2	3539	B 7	3559	H 7	3575	N12	3590	K14	3610	M27
1401	G 1	1440	J21	1452	E21	1464	N22	2407	I18	2419	F 3	2432	F 8	2445	B25	2457	N 5	2469	O26	2481	B14	2496	N 7	3407	I16	3419	H11	3431	E10	3443	D13	3455	D16	3467	G18	3479	M16	3491	H22	3504	D 4	3516	F 4	3528	I 2	3540	B 7	3560	H 8	3576	O13	3591	K15	3611	M26
1403	E27	1441	J21	1453	G21	1465	N22	2408	I12	2420	G 4	2433	F 4	2446	F 9	2458	N 2	2470	K24	2482	G 3	2497	H 6	3408	I15	3420	H12	3432	E10	3444	D14	3456	D16	3468	G18	3480	M17	3492	H23	3505	D 4	3517	G 4	3529	J 2	3541	C 8	3561	H 7	3577	K12	3600	B10	3612	N27
1404	H28	1442	H21	1454	G21	1466	M22	2409	I11	2421	K 3	2435	I 6	2447	N 5	2459	N 3	2471	K25	2483	G 4	2498	I 6	3409	H15	3421	G11	3433	D11	3445	D14	3457	D16	3469	G18	3481	M17	3493	I23	3506	D 4	3518	G 2	3530	J 2	3542	D 8	3562	J 6	3578	K12	3601	C25	3613	M21
1405	M23	1443	H21	1455	H21	1467	M22	2410	B11	2422	C 6	2436	I 6	2448	L 4	2460	O 2	2472	K25	2486	E24	25	A26	3410	I14	3422	G12	3434	D11	3446	D14	3458	D16	3470	H18	3482	M 3	3494	I23	3507	D 3	3519	H 2	3531	A13	3543	F 8	3563	I 9	3579	K12	3602	E27	3614	N21
1410	L 5	1444	D21	1456	G21	1500	O 8	2411	B12	2423	L 3	2437	I 8	2449	L 6	2461	O 2	2473	K25	2487	E25	30	M 8	3411	I14	3423	G11	3435	D12	3447	D14	3459	D17	3471	H18	3483	G26	3496	J23	3508	D 3	3520	G 3	3532	B13	3544	F 7	3568	M 9	3581	K11	3603	E26	3615	M20
1411	L 8	1445	E22	1457	I21	2400	I15	2412	D 3	2424	L 2	2438	I10	2450	M 6	2462	O 3	2474	K26	2488	E25	3400	I17	3412	I13	3424	G12	3436	D12	3448	D14	3460	D17	3472	I19	3484	D22	3497	L19	3509	D 3	3521	H 2	3533	L10	3545	F 7	3569	N 9	3582	K11	3604	H26	3616	N20
1412	D 1	1446	E21	1458	I21	2401	I15	2413	E 3	2425	G26	2439	L 7	2451	L 2	2463	M 3	2475	K26	2489	E25	3401	I17	3413	I13	3425	G11	3437	D12	3449	D15	3461	D17	3473	I12	3485	E22	3498	L20	3510	E 3	3522	G 3	3534	C 9	3546	G 7	3570	N 9	3583	K11	3605	H26	3617	M20
1413	L 1	1447	E22	1459	I21	2402	I14	2414	E 4	2427	C 9	2440	L 7	2452	M 2	2464	M25	2476	F 2	2490	E24	3402	I17	3414	I13	3426	F12	3438	D12	3450	D15	3462	E18	3474	I11	3486	E22	3499	L21	3511	E 3	3523	H 2	3535	G24	3547	G 7	3571	M11	3585	K13	3606	I26	3618	N20
1416	M28	1448	F21	1460	I21	2403	I14	2415	E 4	2428	D 9	2441	M 9	2453	M 6	2465	M25	2477	F 4	2491	G 4	3403	I16	3415	I13	3427	F11	3439	D13	3451	D15	3463	E18	3475	H11	3487	F22	3500	M 4	3512	F 3	3524	H 2	3536	L 3	3556	H 6	3572	N11	3586	K13	3607	H25	3619	M19
1417	M27	1449	F22	1461	D21	2404	E18	2416	E 4	2429	D 5	2442	M11	2454	N 6	2466	M26	2478	C13	2492	M 4	3404	I16	3416	I13	3428	F12	3440	D13	3452	D15	3464	F18	3476	C11	3488	F22	3501	N 4	3513	F 3	3525	I 2	3537	C 6	3557	H 6	3573	O11	3587	K14	3608	H25	3620	N19
1418	N 1	1450	F21	1462	E21	2405	H18	2417	E 5	2430	D 8	2443	M12	2455	M 7	2467	O25	2479	C14	2493	N 4	3405	I16	3417	I12	3429	F12	3441	D13	3453	D15	3465	G18	3477	C12	3489	G22	3502	M 3	3514	F 2	3526	I 2	3538	B 6	3558	H 6	3574	O12	3589	K14	3609	I25	3621	M18


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K L M N O
1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGI
PHANTO
AUX
TUNER
CD
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT BACK
FM MW SW LW REC STEREO NR AM PM FADER
VOCAL
RDS
PRESET
TUNING
DSC Backlight
7403 BC818-40
7413 BC847C
7414 BC847C
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
To TU'95 RDS
To ECO5
1412
1419
GND
RDS
ENABLE
DATA
CLOCK
STEREO
TU_RDS
TU_CE
TU_DATA
TU_CLK
TU_STEREO
VUMETER
7400 BC847C
7401 BC847C
7436 ST24CBXX1
I2C_CLK
I2C_DATA
TO AF3
1401
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
CDSTBY
HYDRAULIC VOLUME,LIGHT TRANSMITTER
7408 BC847C
7409 BC847C
7410 BC847C
7411 BC847C
7412 BC847C
HVC_DE_TX
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Source w.80k pull down to VKK
VKK
VDD
7441 TMP87CN71AF
IR EYE
GP1U28XP
TPSOLAMOTA
TU_STEREO
TPSHSTR
TPSOLBMOTB
VOL_B
TU_CE
TU_CLK
MUTE
KEY
OPTIONS
TPEOTA
TPEOTB
HVC_SW
HP_SENSE
VUMETER
TPADC3
TPADC1
TPADC2
NTC
I2C_DATA
CD_TRAYSW
RESET
7421 BC858C
7419 BC858C
7423 BC858C
7425 BC858C
RED
GREEN
7402 BC847C
CD
TUNER
TAPE
AUX
To DPL
1413
I2C_CLK
I2C_DATAPL
MUTE
7422 BC847C
PROVISION
1418
VOL_A
VOL_B
HVLMOT_IN
HVLMOT_OUT
HVC_SW
HVCMOT_IN
HVCMOT_OUT
1410
1411
AUX_L
AUX_R
LINE_OUT PCB
LINE_L
LINE_R
7447 BC817-40
7446 BC817-40
7438 74HCT4094
7439 74HCT4094
7440 74HCT4094
STR
D
CP
QP0
QP1
QP2
QP3
GND
VCC
OE
QP4
QP5
QP6
QP7
QS2
QS1
7415 BC847C
INC. SOUND
DBB
AMP_ON
FLASHING LEDS
7427 BC858C
7428 BC847C

CHINA Ⓒ	ALL OTHER VERSIONS Ⓐ
AUX-IN-1	AUX-IN
AUX-IN-2	LINE-OUT

	/22	non/22
3401	47k	680k

2431	E 6
2432	F 8
2433	F 4
2435	I 6
2436	I 6
2437	I 8
2438	I10
2439	L 7
2440	L 7
2441	M 9
2442	M11
2443	M12
2444	A25
2445	B25
2446	F 9
2447	N 5
2448	L 4
2449	L 6
2450	M 6
2451	L 2
2452	M 2
2453	M 6
2454	N 6
2455	M 7
2456	M 7
2457	N 5
2458	N 2
2459	N 3
2460	O 2
2461	O 2
2462	O 3
2463	M 3
2464	M25
2465	M25
2466	M26
2467	O25
2468	O25
2469	O26
2470	K24
2471	K25
2472	K25
2473	K25
2474	K26
2475	K26
2476	F 2
2477	F 4
2478	C13
2479	C14
2480	B13
2481	B14
2482	G 3
2483	G 4
2486	E24
2487	E25
2488	E25
2489	E25
2490	E24
2491	G 4
2492	M 4
2493	N 4
2495	N 7
2496	N 7
2497	H 6
2498	I 6
25	A26
30	M 8
3400	I17
3401	I17
3402	I17
3403	I16
3404	I16
3405	I16
3406	I16
3407	I16
3408	I15
3409	H15
3410	I14
3411	I14
3412	I13
3413	I13
3414	I13
3415	I13
3416	I13
3417	I12
3418	I12
3419	H11
3420	H12
3421	G11
3422	G12
3423	G11
3424	G12
3425	G11
3426	F12
3427	F11
3428	F12
3429	F12
3430	E11
3431	E10
3432	E10
3433	D11
3434	D11
3435	D12
3436	D12
3437	D12
3438	D12
3439	D13
3440	D13
3441	D13
3442	D13
3443	D13
3444	D14
3445	D14
3446	D14
3447	D14
3448	D14
3449	D15
3450	D15
3451	D15
3452	D15
3453	D15
3454	D16
3455	D16
3456	D16
3457	D16
3458	D16
3459	D17
3460	D17
3461	D17
3462	E18
3463	E18
3464	F18
3465	G18
3466	G18
3467	G18
3468	G18
3469	G18
3470	H18
3471	H18
3472	I19
3473	I12
3474	I11
3475	H11
3476	C11
3477	C12
3478	M16
3479	M16
3480	M17
3481	M17
3482	M 3
3483	G26
3484	D22
3485	E22
3486	E22
3487	F22
3488	F22
3489	G22
3490	G22
3491	H22
3492	H23
3493	I23
3494	I23
3496	J23
3497	L19
3498	L20
3499	L21
3500	M 4
3501	N 4
3502	M 3
3503	M 3
3504	D 4
3505	D 4
3506	D 4
3507	D 3
3508	D 3
3509	D 3
3510	E 3
3511	E 3
3512	F 3
3513	F 3
3514	F 2
3515	F 3
3516	F 4
3517	G 4
3518	G 2
3519	H 2
3520	G 3
3521	H 2
3522	G 3
3523	H 2
3524	H 2
3525	I 2
3526	I 2
3527	I 2
3528	I 2
3529	J 2
3530	J 2
3531	A13
3532	B13
3533	L10
3534	C 9
3535	G24
3536	L 3
3537	C 6
3538	B 6
3539	B 7
3540	B 7
3541	C 8
3542	D 8
3543	F 8
3544	F 7
3545	F 7
3546	G 7
3547	G 7
3556	H 6
3557	H 6
3558	H 6
3559	H 7
3560	H 8
3561	H 7
3562	J 6
3563	I 9
3568	M 9
3569	N 9
3570	N 9
3571	M11
3572	N11
3573	O11
3574	O12
3575	N12
3576	O13
3577	K12
3578	K12
3579	K12
3581	K11
3532	K11
3583	K11
3585	K13
3586	K13
3587	K14
3589	K14
3590	K14
3591	K15
3600	B10
3601	C25
3602	E27
3603	E26
3604	H26
3605	H26
3606	I26
3607	H25
3608	H25
3609	I25
3610	M27
3611	M26
3612	N27
3613	M21
3614	N21
3615	M20
3616	N20
3617	M20
3618	N20
3619	M19
3620	N19
3621	M18
3622	N18
3623	M18
3624	N18
3625	L 2
3626	M 2
3627	D26
3628	C26
3629	M 6
3630	M 6
3631	L 7
3632	M 7
3633	L 6
3634	M 6
3635	N 2
3636	O 2
3637	O 2
3638	O 2
3639	O 2
3640	N26
3641	N27
3642	O26
3643	I27
3644	I27
3645	J26
3646	J27
3647	J26
3648	J27
3649	F 5
3650	C26
3651	B26
3652	B26
3653	O 7
3654	O 7
3655	H18
3660	H 7
3661	H 6
4400	L 6
4401	F 7
4402	G 7
4404	A25
4405	B25
4406	M 6
4407	I27
4408	J26
4409	J26
4410	L 3
5400	I15
5401	I14
5402	C 8
5403	K 4
5404	D 8
5405	F18
5406	F18
5407	F18
5408	F18
6400	G 4
6401	J 3
6402	K 3
6403	I 8
6404	H 9
6405	F11
6406	F11
6407	F11
6408	N16
6409	N16
6410	N17
6411	N17
6412	K 3
6420	B10
6421	D20
6422	E20
6423	E20
6424	F20
6425	N12
6426	O14
6427	K12
6428	K11
6429	K13
6430	K15
6431	N18
6432	N19
6433	N21
6434	D23
6435	E23
6436	E23
6437	F23
6438	F23
6439	G23
6440	G23
6441	H23
6442	H22
6443	I22
6444	I22
6446	J22
6447	E26
6448	E26
6449	K 3
6450	K20
6451	K20
6452	K21
6453	G20
6454	G20
7400	G 2
7401	G 3
7402	L11
7403	C10
7408	I 6
7409	I 7
7410	I 8
7411	H 9
7412	I 9
7413	B11
7414	B12
7415	N11
7416	H18
7417	G27
7418	F20
7419	J12
7421	J11
7422	N 3
7423	J14
7425	J15
7427	M18
7428	O18
7429	M20
7430	O20
7431	M21
7432	O21
7433	H24
7434	H26
7435	I11
7436	F 8
7437	C 6
7438	M10
7439	M13
7440	M15
7441	H12
7445	G25
7446	N 8
7447	N 7
9650	B13
9651	B13

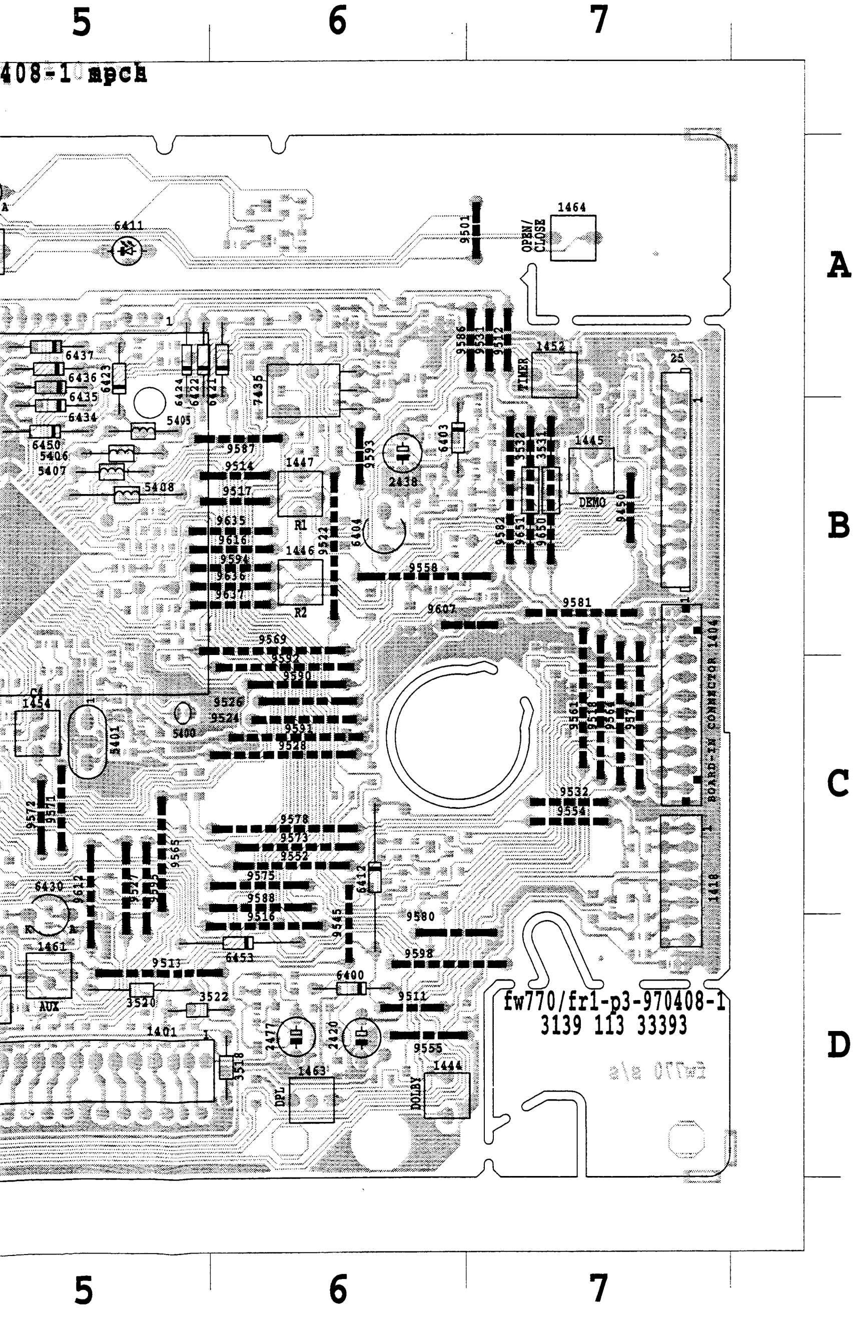


1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
RDS
VOCAL
FADER
PLAY MODE
SET CLOCK
PROGRAM
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
AUX
TUNER
CD
DSC Backlight
RDS DECODER
NON-RDS VERSION
SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
ST24C8XX1
HYDRAULIC VOLUME,LIGHT TRANSMITTER
7441
TMP87CN71AF
IR EYE
GP1U28XP
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 4
I/O PORT 5
I/O PORT 3
I/O PORT 1
Open Source w.80k pull down to VKK
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Drain
Tri-State
VKK
VDD
3401
/22
non/22
47k
680k
CHINA
ALL OTHER VERSIONS
AUX-IN-1
AUX-IN
AUX-IN-2
LINE-OUT
LINE_OUT PCB
AUX_L
AUX_R
LINE_L
LINE_R
74HCT4094
7438
7439
7440
RED
GREEN
TUNER
TAPE
AUX
INC. SOUND
DBB
FLASHING LEDS
CDC Backlight
CDC/CD KEY
TO CONNECTOR 1403
TO CONNECTOR 1405
TO CD/CDC
TO LOGIC DECK
TO ETF2
EOT SIGNAL CONDITIONERS
PROVISION
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
OPTIMAL
STDBY
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
DISC3
DISC1
DISC2
Open/Close
■ For CDC3 version.
▲ For CDSL version.
⊠ For provision only
CDC3
VIDEM
OE_LATCH
NC
SICL
NC
GND
GND
SILD
TRQ
DATA
SCK
PORE
RESET
SH_CLK
USRS1
STR_OUTP
USRS0
SW_INFO
GND
NC
NC
KEY1
KEY0
P05'
P06'
+F
CDC1LIT
CDC2LIT
CDC3LIT
LED-1
LED-2
GND
+G
AD1
EOTB
SOLBMOTB
AD2
EOTA
SOLA/MOTA
AD3
NS/HS
ENABLE
DATA
CLK
GND
Rec/ALC
Cr/Fe
Dolby

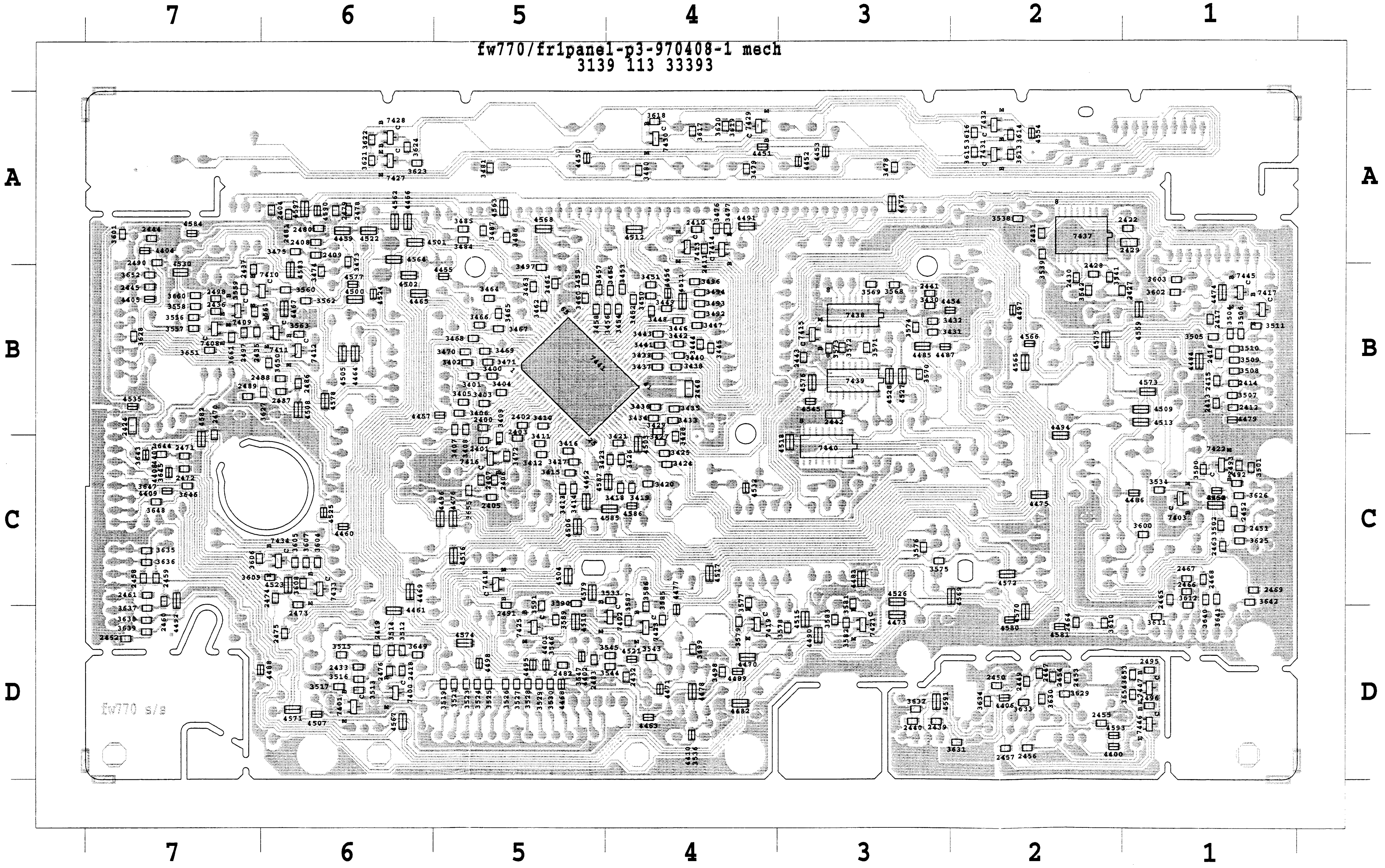
PCS 96 786

FRONT CHIP LAYOUT *(HVC VERSION)*

A 7	9545 D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6
C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	
C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	

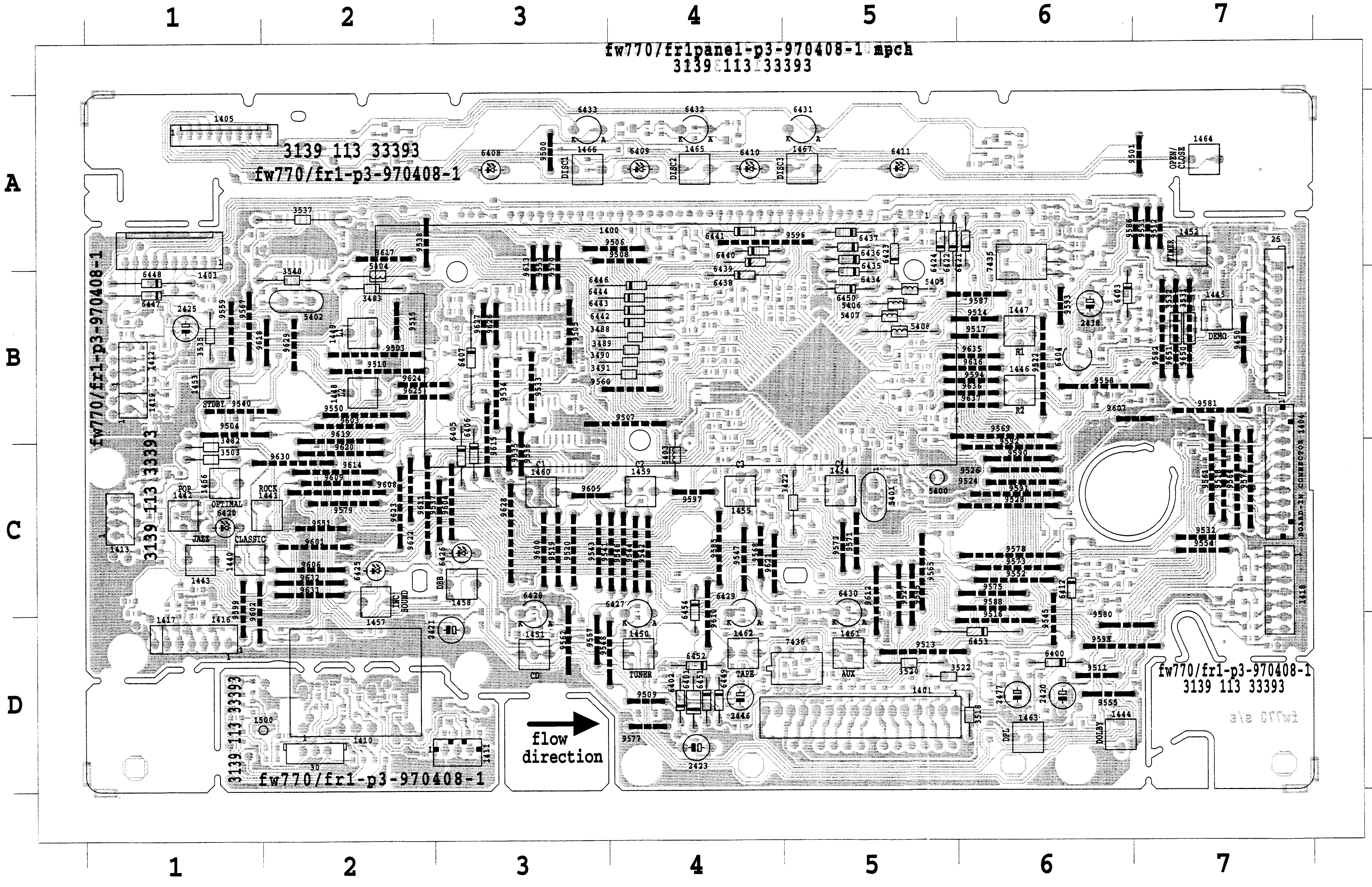


2407 C 5	2439 D 3	2465 C 1	2493 C 1	3420 C 4	3446 B 4	3471 B 5	3504 B 1	3534 C 1	3574 B 3	3610 D 2	3635 C 7	4402 D 5	4467 B 6	4495 D 5	4524 B 6	4575 B 2	7412 B 6	7445 B 1
2408 A 6	2440 D 3	2466 C 1	2495 D 1	3421 C 4	3447 B 4	3472 C 5	3505 B 1	3536 D 4	3575 C 3	3611 D 1	3636 C 7	4404 A 7	4468 D 5	4496 C 5	4525 C 6	4576 B 3	7413 A 4	7446 D 1
2409 A 6	2441 B 3	2467 C 1	2496 D 1	3423 C 4	3448 B 4	3473 A 6	3506 B 1	3538 A 2	3576 C 3	3612 D 1	3637 D 7	4405 B 7	4469 C 6	4497 B 2	4526 C 3	4577 B 6	7414 A 4	7447 D 1
2410 A 4	2442 B 3	2468 C 1	2497 B 7	3424 C 4	3449 B 4	3474 B 6	3507 B 1	3539 A 2	3577 C 4	3613 A 2	3638 D 7	4406 D 2	4470 D 4	4498 D 5	4527 B 3	4578 B 6	7415 B 3	----
2411 A 4	2443 B 3	2469 C 1	2498 B 7	3425 C 4	3450 B 4	3475 A 6	3508 B 1	3541 B 2	3578 D 3	3614 A 2	3639 D 7	4407 C 7	4471 D 4	4500 B 6	4528 B 3	4579 C 5	7416 C 5	
2412 B 1	2444 A 7	2470 C 7	3400 B 5	3426 C 4	3451 B 4	3476 A 4	3509 B 1	3542 B 2	3579 D 4	3615 A 2	3640 C 1	4408 C 7	4472 A 3	4501 A 6	4530 B 7	4580 D 2	7417 B 1	
2413 B 1	2445 B 7	2471 C 7	3401 B 5	3427 C 4	3452 B 4	3477 A 4	3510 B 1	3543 D 4	3581 C 3	3616 A 2	3641 C 1	4409 C 7	4473 D 3	4502 B 6	4532 C 4	4581 D 2	7418 C 5	
2414 B 1	2447 D 2	2472 C 7	3402 B 5	3428 C 4	3453 B 4	3478 A 3	3511 B 1	3544 D 4	3582 D 3	3617 A 4	3642 C 1	4410 D 4	4474 B 1	4503 C 4	4535 B 7	4582 C 7	7419 D 4	
2415 B 1	2448 B 4	2473 C 6	3403 B 5	3429 B 4	3454 B 4	3479 A 4	3512 D 6	3545 D 4	3583 D 3	3618 A 4	3643 C 7	4450 A 5	4475 C 2	4504 C 5	4545 B 3	4583 B 6	7421 D 3	
2416 B 1	2449 D 2	2474 C 6	3404 B 5	3430 B 3	3455 B 4	3480 A 4	3513 D 6	3546 D 5	3585 D 4	3619 A 4	3644 C 7	4451 A 4	4476 C 5	4505 B 6	4554 A 2	4584 A 7	7422 C 1	
2417 B 1	2450 D 2	2475 D 6	3405 B 5	3431 B 3	3456 B 4	3481 A 5	3514 D 6	3547 D 5	3586 D 4	3620 A 4	3645 C 7	4452 A 3	4477 D 4	4506 C 5	4559 B 1	4585 C 4	7423 D 4	
2418 D 6	2451 C 1	2476 D 6	3406 B 5	3432 B 3	3457 B 5	3484 A 5	3515 D 6	3556 B 7	3587 D 4	3621 A 6	3646 C 7	4453 A 3	4478 D 4	4507 D 6	4560 C 1	4586 C 4	7425 D 5	
2419 D 6	2452 C 1	2478 A 6	3407 B 5	3433 B 4	3458 B 5	3485 A 5	3516 D 6	3557 B 7	3589 D 5	3622 A 6	3647 C 7	4454 B 3	4479 B 1	4508 B 6	4562 A 6	4587 C 4	7427 A 6	
2422 A 1	2453 D 2	2479 A 6	3408 B 5	3434 B 4	3459 B 5	3486 A 5	3517 D 6	3558 B 7	3590 C 5	3623 A 6	3648 C 7	4455 B 5	4482 D 4	4509 B 1	4563 A 5	4590 A 6	7428 A 6	
2424 B 7	2454 D 2	2480 A 6	3409 C 5	3435 B 4	3460 B 5	3487 A 5	3519 D 5	3559 B 7	3591 D 5	3624 A 6	3649 D 6	4456 B 4	4483 C 3	4510 D 5	4564 A 6	4591 D 3	7429 A 4	
2427 B 2	2455 D 2	2481 A 6	3410 B 5	3436 B 4	3461 B 5	3492 B 4	3521 D 5	3560 B 6	3600 C 1	3625 C 1	3650 B 6	4457 B 5	4484 B 1	4511 B 4	4565 B 2	4593 D 2	7430 A 4	
2428 B 2	2456 D 2	2482 D 5	3411 C 5	3437 B 4	3462 B 5	3493 B 4	3523 D 5	3561 B 7	3601 A 7	3626 C 1	3651 B 7	4458 C 1	4485 B 3	4512 A 4	4566 B 2	4597 A 6	7431 A 2	
2429 A 1	2457 D 2	2483 D 5	3412 C 5	3438 B 4	3463 B 5	3494 B 4	3524 D 5	3562 B 6	3602 B 1	3627 B 6	3652 B 7	4459 A 6	4486 C 1	4513 B 1	4567 D 6	7400 D 6	7432 A 2	



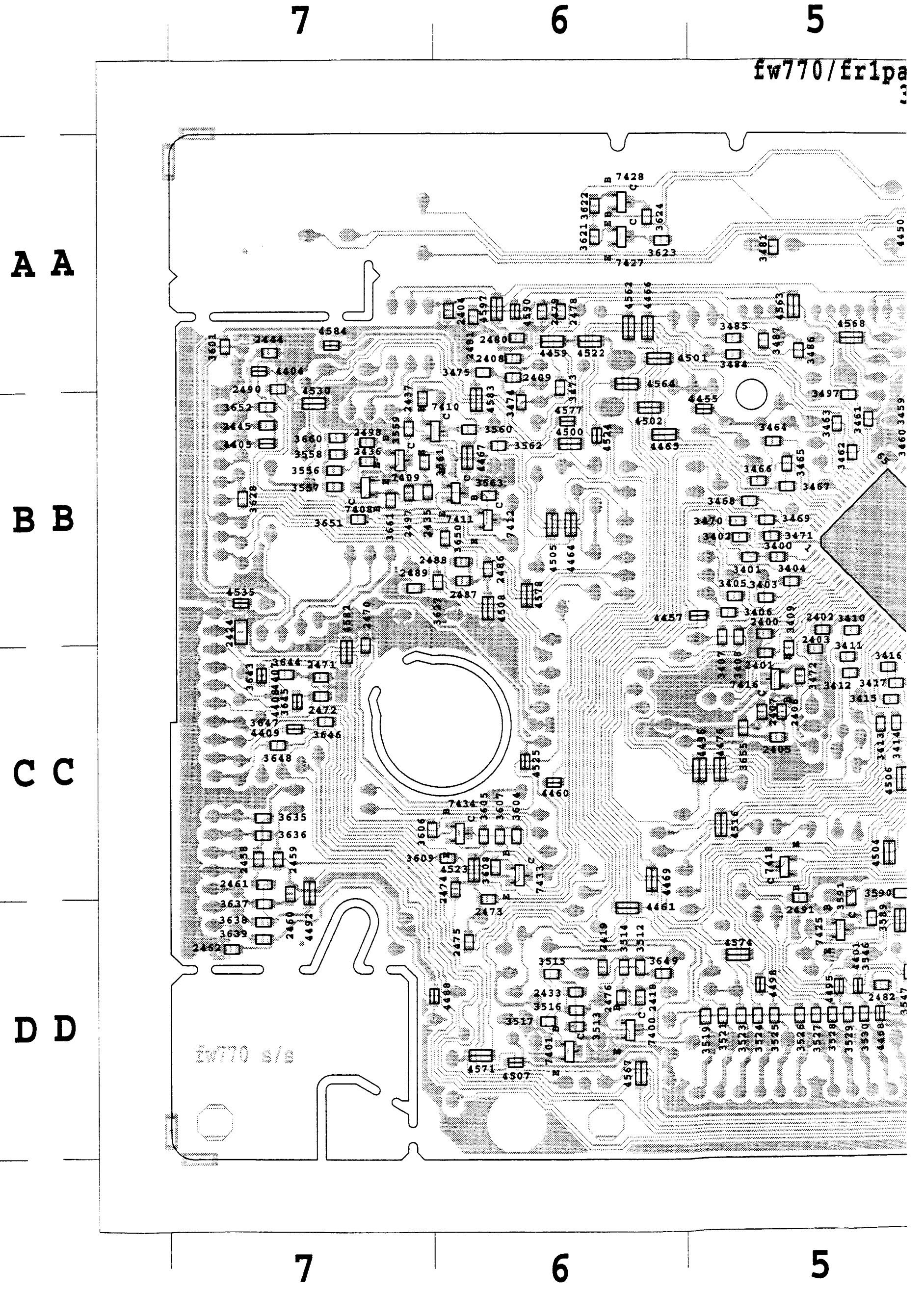
FRONT COMPONENT LAYOUT *(HVC VERSION)*

25 B 7	1418 C 7	1451 D 3	1464 A 7	3482 C 1	3537 A 2	6402 D 4	6422 A 5	6442 B 4	7436 D 5	9512 A 7	9531 A 7	9545 D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6
30 D 2	1419 B 1	1452 A 7	1465 A 4	3483 B 2	3540 B 2	6403 B 6	6423 A 5	6443 B 4	9450 B 7	9513 D 5	9532 C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
1400 A 4	1440 C 1	1453 B 1	1466 A 3	3488 B 4	5400 C 5	6404 B 6	6424 A 5	6444 B 4	9500 A 3	9514 B 6	9533 B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
1401 D 5	1441 C 2	1454 C 5	1467 A 5	3489 B 4	5401 C 5	6405 C 3	6425 C 2	6446 B 4	9501 A 7	9516 D 6	9534 B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
1403 A 1	1442 C 1	1455 C 4	1500 D 2	3490 B 4	5402 B 2	6406 C 3	6426 C 3	6447 B 1	9503 B 2	9517 B 6	9535 C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
1404 C 7	1443 C 1	1456 C 1	2420 D 6	3491 B 4	5403 C 4	6407 B 3	6434 B 5	6448 B 1	9504 B 1	9518 C 7	9536 C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
1405 A 1	1444 D 6	1457 C 2	2421 D 3	3503 C 1	5404 B 2	6408 A 3	6435 A 5	6449 D 4	9505 B 3	9519 C 3	9537 C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
1410 D 2	1445 B 7	1458 C 3	2423 D 4	3518 D 6	5405 B 5	6409 A 4	6436 A 5	6450 B 5	9506 A 4	9520 C 3	9538 A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
1411 D 3	1446 B 6	1459 C 4	2425 B 1	3520 D 5	5406 B 5	6410 A 4	6437 A 5	6451 D 4	9507 B 4	9522 B 6	9540 B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
1412 B 1	1447 B 6	1460 C 3	2438 B 6	3522 D 5	5407 B 5	6411 A 5	6438 B 4	6452 D 4	9508 A 4	9524 C 6	9541 C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	
1413 C 1	1448 B 2	1461 D 5	2446 D 4	3531 B 7	5408 B 5	6412 C 6	6439 A 4	6453 D 6	9509 D 4	9526 C 6	9542 C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
1416 D 1	1449 B 2	1462 D 4	2477 D 6	3532 B 7	6400 D 6	6420 C 1	6440 A 4	6454 C 4	9510 B 2	9527 C 5	9543 C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
1417 D 1	1450 D 4	1463 D 6	3422 C 5	3535 B 1	6401 D 4	6421 A 6	6441 A 4	7435 A 6	9511 D 6	9528 C 6	9544 C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	



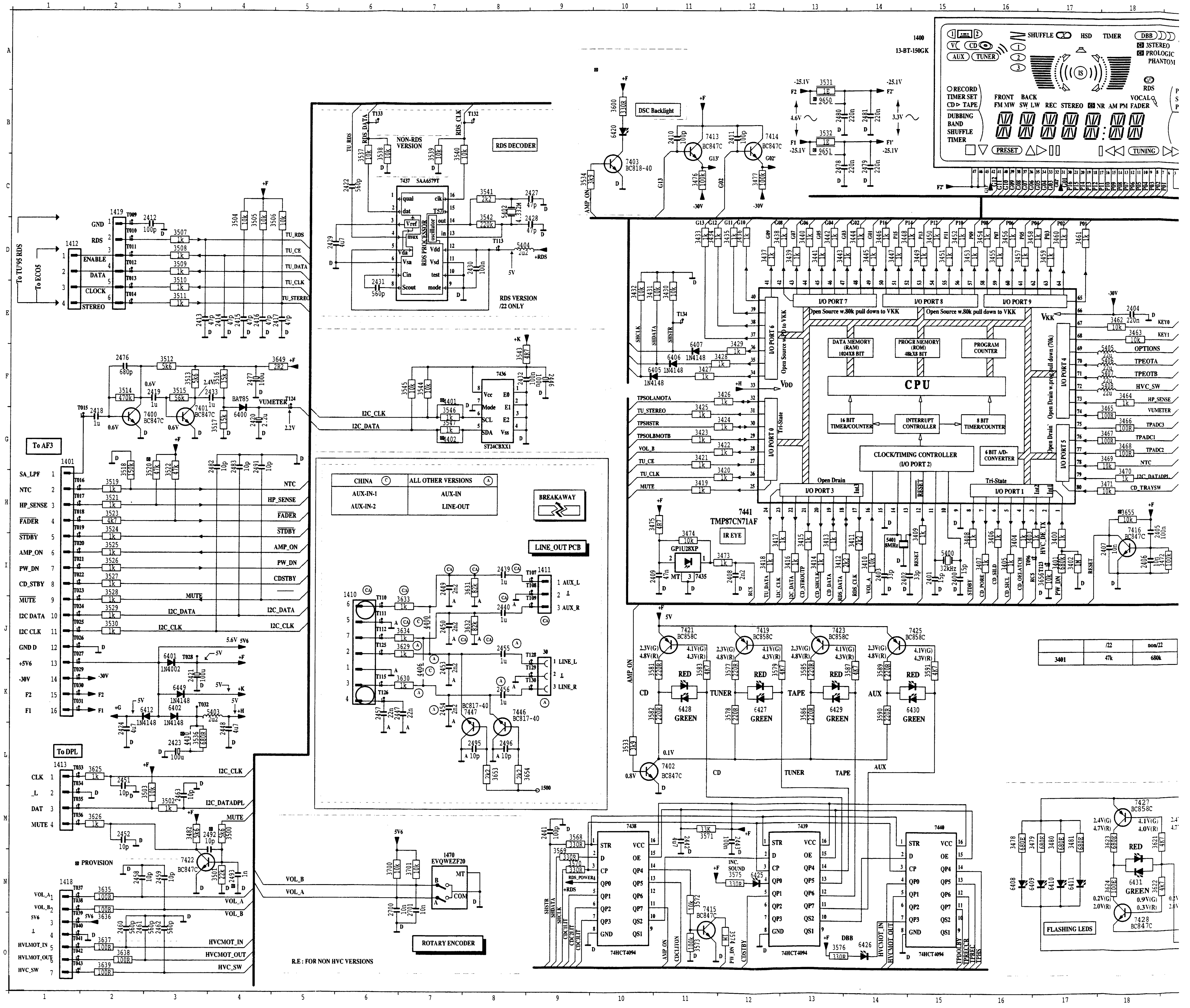
FRONT CHIP LAYOUT *(HVC VERSION)*

2407 C 5	2439 D 3	2465 C 1	2493 C 1	3420 C 4	3446 B 4	3471 B 5	3504 B 1
2408 A 6	2440 D 3	2466 C 1	2495 D 1	3421 C 4	3447 B 4	3472 C 5	3505 B 1
2409 A 6	2441 B 3	2467 C 1	2496 D 1	3423 C 4	3448 B 4	3473 A 6	3506 B 1
2410 A 4	2442 B 3	2468 C 1	2497 B 7	3424 C 4	3449 B 4	3474 B 6	3507 B 1
2411 A 4	2443 B 3	2469 C 1	2498 B 7	3425 C 4	3450 B 4	3475 A 6	3508 B 1
2412 B 1	2444 A 7	2470 C 7	3400 B 5	3426 C 4	3451 B 4	3476 A 4	3509 B 1
2413 B 1	2445 B 7	2471 C 7	3401 B 5	3427 C 4	3452 B 4	3477 A 4	3510 B 1
2414 B 1	2447 D 2	2472 C 7	3402 B 5	3428 C 4	3453 B 4	3478 A 3	3511 B 1
2415 B 1	2448 B 4	2473 C 6	3403 B 5	3429 B 4	3454 B 4	3479 A 4	3512 D 6
2416 B 1	2449 D 2	2474 C 6	3404 B 5	3430 B 3	3455 B 4	3480 A 4	3513 D 6
2417 B 1	2450 D 2	2475 D 6	3405 B 5	3431 B 3	3456 B 4	3481 A 5	3514 D 6
2418 D 6	2451 C 1	2476 D 6	3406 B 5	3432 B 3	3457 B 5	3484 A 5	3515 D 6
2419 D 6	2452 C 1	2478 A 6	3407 B 5	3433 B 4	3458 B 5	3485 A 5	3516 D 6
2422 A 1	2453 D 2	2479 A 6	3408 B 5	3434 B 4	3459 B 5	3486 A 5	3517 D 6
2424 B 7	2454 D 2	2480 A 6	3409 C 5	3435 B 4	3460 B 5	3487 A 5	3519 D 5
2427 B 2	2455 D 2	2481 A 6	3410 B 5	3436 B 4	3461 B 5	3492 B 4	3521 D 5
2428 B 2	2456 D 2	2482 D 5	3411 C 5	3437 B 4	3462 B 5	3493 B 4	3523 D 5
2429 A 1	2457 D 2	2483 D 5	3412 C 5	3438 B 4	3463 B 5	3494 B 4	3524 D 5



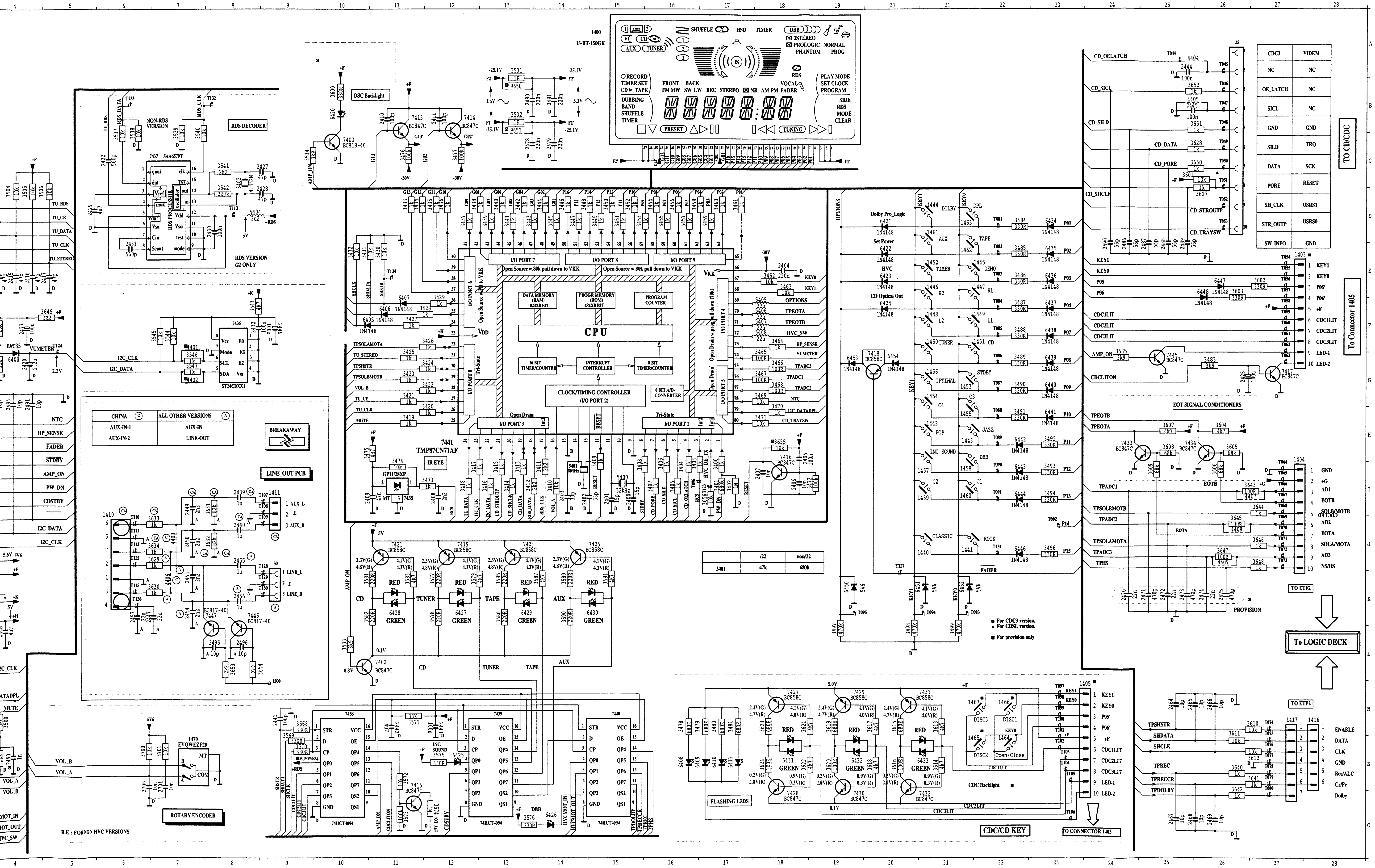
FRONT CIRCUIT *(N0N-HVC VERSION)*

1400 A15	1418 N 1	1449 F22	1460 I21	2401 I15	2412 D 3	2423 L 3	2440 J 8	2451 L 2	2462 O 3	2473 K25	2486 E24	2700 N 6	3408 I15	3419 H11	3430 E11	3441 D13	3452 D15	3463 E18	3474 I11	3485 E22	3497 L19	3508 D 3	3519 H 2	3530 J 2	3541 C 8	3572 N11	3585 K13
1401 G 1	1419 C 2	1450 F21	1461 D21	2402 I14	2413 E 3	2424 L 2	2441 M 9	2452 M 2	2463 M 3	2474 K26	2487 E25	2701 N 7	3409 H15	3420 H12	3431 E10	3442 D13	3453 D15	3464 F18	3475 H10	3486 E22	3498 L20	3509 D 3	3520 G 3	3531 A13	3542 D 8	3573 O11	3586 K13
1403 E27	1440 J21	1451 F22	1462 E21	2403 I14	2414 E 4	2425 G26	2442 M11	2453 K 7	2464 M25	2475 K26	2488 E25	30 J 9	3410 I14	3421 G11	3432 E10	3443 D13	3454 D16	3465 G18	3476 C11	3487 F22	3499 L21	3510 E 3	3521 H 2	3532 B13	3543 F 8	3574 O12	3587 K14
1404 H28	1441 J21	1452 E21	1463 D21	2404 E18	2415 E 4	2427 C 9	2443 M12	2454 K 7	2465 M25	2476 F 2	2489 E25	3400 I17	3411 I14	3422 G12	3433 D11	3444 D14	3455 D16	3466 G18	3477 C12	3488 F22	3500 M 4	3511 E 3	3522 G 3	3533 L10	3544 F 7	3575 N12	3589 K14
1405 M23	1442 H21	1453 G21	1464 N22	2405 H18	2416 E 4	2428 D 9	2444 A25	2455 J 8	2466 M26	2477 F 4	2490 E24	3401 I17	3412 I13	3423 G11	3434 D11	3445 D14	3456 D16	3467 G18	3478 M16	3489 G22	3501 N 4	3512 F 3	3523 H 2	3534 C 9	3545 F 7	3576 O13	3590 K14
1410 I 6	1443 H21	1454 G21	1465 N22	2406 I18	2417 E 5	2429 D 5	2445 B25	2456 K 8	2467 O25	2478 C13	2491 G 4	3402 I17	3413 I13	3424 G12	3435 D12	3446 D14	3457 D16	3468 G18	3479 M16	3490 G22	3502 M 3	3513 F 3	3524 H 2	3535 G24	3546 G 7	3577 K12	3591 K15
1411 I 9	1444 D21	1455 H21	1466 M22	2407 I18	2418 F 2	2430 D 8	2446 F 9	2457 K 6	2468 O25	2479 C14	2492 M 4	3403 I16	3414 I13	3425 G11	3436 D12	3447 D14	3458 D16	3469 G18	3480 M17	3491 H22	3503 M 3	3514 F 2	3525 I 2	3536 L 3	3547 G 7	3578 K12	3600 B10
1412 D 1	1445 E22	1456 G21	1467 M22	2408 I12	2419 F 3	2431 E 6	2447 K 6	2458 N 2	2469 O26	2480 B13	2493 N 4	3404 I16	3415 I13	3426 F12	3437 D12	3448 D14	3459 D17	3470 H18	3481 M17	3492 H23	3504 D 4	3515 F 3	3526 I 2	3537 C 6	3568 M 9	3579 K12	3601 C25
1413 L 1	1446 E21	1457 I21	1470 N 7	2409 I11	2420 G 4	2432 F 8	2448 L 4	2459 N 3	2470 K24	2481 B14	2495 L 8	3405 I16	3416 I13	3427 F11	3438 D12	3449 D15	3460 D17	3471 H18	3482 M 3	3493 I23	3505 D 4	3516 F 4	3527 I 2	3538 B 6	3569 N 9	3581 K10	3602 E27
1416 M28	1447 E22	1458 I21	1500 M 9	2410 B11	2421 K 3	2433 F 4	2449 I 7	2460 O 2	2471 K25	2482 G 3	2496 L 8	3406 I16	3417 I12	3428 F12	3439 D13	3450 D15	3461 D17	3472 I19	3483 G26	3494 I23	3506 D 4	3517 G 4	3528 I 2	3539 B 7	3570 N 9	3582 K10	3603 E26
1417 M27	1448 F21	1459 I21	2400 I15	2411 B12	2422 C 6	2439 I 8	2450 J 7	2461 O 2	2472 K25	2483 G 4	25 A26	3407 I16	3418 I12	3429 F12	3440 D13	3451 D15	3462 E18	3473 I12	3484 D22	3496 J23	3507 D 3	3518 G 2	3529 J 2	3540 B 7	3571 M11	3583 K11	3604 H26


1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
PHANTOM
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT BACK
FM MW SW LW REC STEREO NR AM PM FADER
RDS
VOCAL
PRESET
TUNING
AUX
TUNER
CD
DSC Backlight
7403 BC818-40
7413 BC847C
7414 BC847C
AMP_ON
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
RDS VERSION /22 ONLY
To TU'95 RDS
To ECO5
1412
1419
ENABLE
DATA
CLOCK
STEREO
GND
RDS
TU_RDS
TU_CE
TU_DATA
TU_CLK
TU_STEREO
To AF3
1401
SA_LPF
NTC
HP_SENSE
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
VUMETER
7400 BC847C
7401 BC847C
BAT85
I2C_CLK
I2C_DATA
7436 ST24C08XX1
CHINA
ALL OTHER VERSIONS
AUX-IN-1
AUX-IN
AUX-IN-2
LINE-OUT
BREAKAWAY
LINE_OUT PCB
1410
1411
AUX_L
AUX_R
LINE_L
LINE_R
7447 BC817-40
7446 BC817-40
To DPL
1413
CLK
DAT
MUTE
I2C_DATADPL
7422 BC847C
PROVISION
1418
VOL_A
VOL_B
5V6
HVLMOT_IN
HVLMOT_OUT
HVC_SW
HVCMOT_IN
HVCMOT_OUT
1470 EVQWEZF20
ROTARY ENCODER
R.E : FOR NON HVC VERSIONS
7441 TMP87CN71AF
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Source w.80k pull down to VKK
Open Drain
Tri-State
VKK
VDD
RESET
IR EYE
GP1U28XP
TPSOLAMOTA
TU_STEREO
TPSHSTR
TPSOLBMOTB
VOL_B
TU_CE
TU_CLK
MUTE
KEY0
KEY1
OPTIONS
TPEOTA
TPEOTB
HVC_SW
HP_SENSE
VUMETER
TPADC3
TPADC1
TPADC2
NTC
I2C_DATADPL
CD_TRAYSW
7416 BC847C
7421 BC858C
7419 BC858C
7423 BC858C
7425 BC858C
RED
GREEN
CD
TUNER
TAPE
AUX
7402 BC847C
7438 74HCT4094
7439 74HCT4094
7440 74HCT4094
7415 BC847C
INC. SOUND
DBB
STR
CP
OE
7427 BC858C
7428 BC847C
FLASHING LEDS

	/22	non/22
3401	47k	680k

412	D 3
413	E 3
414	E 4
415	E 4
416	E 4
417	E 5
418	F 2
419	F 3
420	G 4
421	K 3
422	C 6
2423	L 3
2424	L 2
2425	G26
2427	C 9
2428	D 9
2429	D 5
2430	D 8
2431	E 6
2432	F 8
2433	F 4
2439	I 8
2440	J 8
2441	M 9
2442	M11
2443	M12
2444	A25
2445	B25
2446	F 9
2447	K 6
2448	L 4
2449	I 7
2450	J 7
2451	L 2
2452	M 2
2453	K 7
2454	K 7
2455	J 8
2456	K 8
2457	K 6
2458	N 2
2459	N 3
2460	O 2
2461	O 2
2462	O 3
2463	M 3
2464	M25
2465	M25
2466	M26
2467	O25
2468	O25
2469	O26
2470	K24
2471	K25
2472	K25
2473	K25
2474	K26
2475	K26
2476	F 2
2477	F 4
2478	C13
2479	C14
2480	B13
2481	B14
2482	G 3
2483	G 4
2486	E24
2487	E25
2488	E25
2489	E25
2490	E24
2491	G 4
2492	M 4
2493	N 4
2495	L 8
2496	L 8
25	A26
2700	N 6
2701	N 7
30	J 9
3400	I17
3401	I17
3402	I17
3403	I16
3404	I16
3405	I16
3406	I16
3407	I16
3408	I15
3409	H15
3410	I14
3411	I14
3412	I13
3413	I13
3414	I13
3415	I13
3416	I13
3417	I12
3418	I12
3419	H11
3420	H12
3421	G11
3422	G12
3423	G11
3424	G12
3425	G11
3426	F12
3427	F11
3428	F12
3429	F12
3430	E11
3431	E10
3432	E10
3433	D11
3434	D11
3435	D12
3436	D12
3437	D12
3438	D12
3439	D13
3440	D13
3441	D13
3442	D13
3443	D13
3444	D14
3445	D14
3446	D14
3447	D14
3448	D14
3449	D15
3450	D15
3451	D15
3452	D15
3453	D15
3454	D16
3455	D16
3456	D16
3457	D16
3458	D16
3459	D17
3460	D17
3461	D17
3462	E18
3463	E18
3464	F18
3465	G18
3466	G18
3467	G18
3468	G18
3469	G18
3470	H18
3471	H18
3472	I19
3473	I12
3474	I11
3475	H10
3476	C11
3477	C12
3478	M16
3479	M16
3480	M17
3481	M17
3482	M 3
3483	G26
3484	D22
3485	E22
3486	E22
3487	F22
3488	F22
3489	G22
3490	G22
3491	H22
3492	H23
3493	I23
3494	I23
3496	J23
3497	L19
3498	L20
3499	L21
3500	M 4
3501	N 4
3502	M 3
3503	M 3
3504	D 4
3505	D 4
3506	D 4
3507	D 3
3508	D 3
3509	D 3
3510	E 3
3511	E 3
3512	F 3
3513	F 3
3514	F 2
3515	F 3
3516	F 4
3517	G 4
3518	G 2
3519	H 2
3520	G 3
3521	H 2
3522	G 3
3523	H 2
3524	H 2
3525	I 2
3526	I 2
3527	I 2
3528	I 2
3529	J 2
3530	J 2
3531	A13
3532	B13
3533	L10
3534	C 9
3535	G24
3536	L 3
3537	C 6
3538	B 6
3539	B 7
3540	B 7
3541	C 8
3542	D 8
3543	F 8
3544	F 7
3545	F 7
3546	G 7
3547	G 7
3568	M 9
3569	N 9
3570	N 9
3571	M11
3572	N11
3573	O11
3574	O12
3575	N12
3576	O13
3577	K12
3578	K12
3579	K12
3581	K10
3582	K10
3583	K11
3585	K13
3586	K13
3587	K14
3589	K14
3590	K14
3591	K15
3600	B10
3601	C25
3602	E27
3603	E26
3604	H26
3605	H26
3606	I26
3607	H25
3608	H25
3609	I25
3610	M27
3611	M26
3612	N27
3613	M21
3614	N21
3615	M20
3616	N20
3617	M20
3618	N20
3619	M19
3620	N19
3621	M18
3622	N18
3623	M18
3624	N18
3625	L 2
3626	M 2
3627	D26
3628	C26
3629	J 7
3630	K 7
3631	I 8
3632	J 8
3633	J 7
3634	J 7
3635	N 2
3636	O 2
3637	O 2
3638	O 2
3639	O 2
3640	N26
3641	N27
3642	O26
3643	I27
3644	I27
3645	J26
3646	J27
3647	J26
3648	J27
3649	F 5
3650	C26
3651	B26
3652	B25
3653	L 8
3654	L 8
3655	H18
3656	I17
3700	N 6
3701	N 7
4400	J 7
4401	F 7
4402	G 7
4404	A25
4405	B25
4406	K 7
4407	I27
4408	J26
4409	J26
4410	L 3
5400	I15
5401	I14
5402	C 8
5403	K 4
5404	D 8
5405	F18
5406	F18
5407	F18
5408	F18
6400	G 4
6401	J 3
6402	K 3
6405	F10
6406	F11
6407	F11
6408	N16
6409	N16
6410	N17
6411	N17
6412	K 3
6420	B10
6421	D20
6422	E20
6423	E20
6424	F20
6425	N12
6426	O14
6427	K12
6428	K11
6429	K13
6430	K15
6431	N18
6432	N19
6433	N21
6434	D23
6435	E23
6436	E23
6437	F23
6438	F23
6439	G23
6440	G23
6441	H23
6442	H22
6443	I22
6444	I22
6446	J22
6447	E26
6448	E26
6449	K 3
6450	K20
6451	K20
6452	K21
6453	G20
6454	G20
7400	G 2
7401	G 3
7402	L11
7403	C10
7413	B11
7414	B12
7415	N11
7416	H18
7417	G27
7418	F20
7419	J12
7421	J11
7422	N 3
7423	J14
7425	J15
7427	M18
7428	O18
7429	M20
7430	O20
7431	M21
7432	O21
7433	H24
7434	H26
7435	I11
7436	F 8
7437	C 6
7438	M10
7439	M13
7440	M15
7441	H12
7445	G25
7446	K 8
7447	K 8
9650	B13
9651	B13

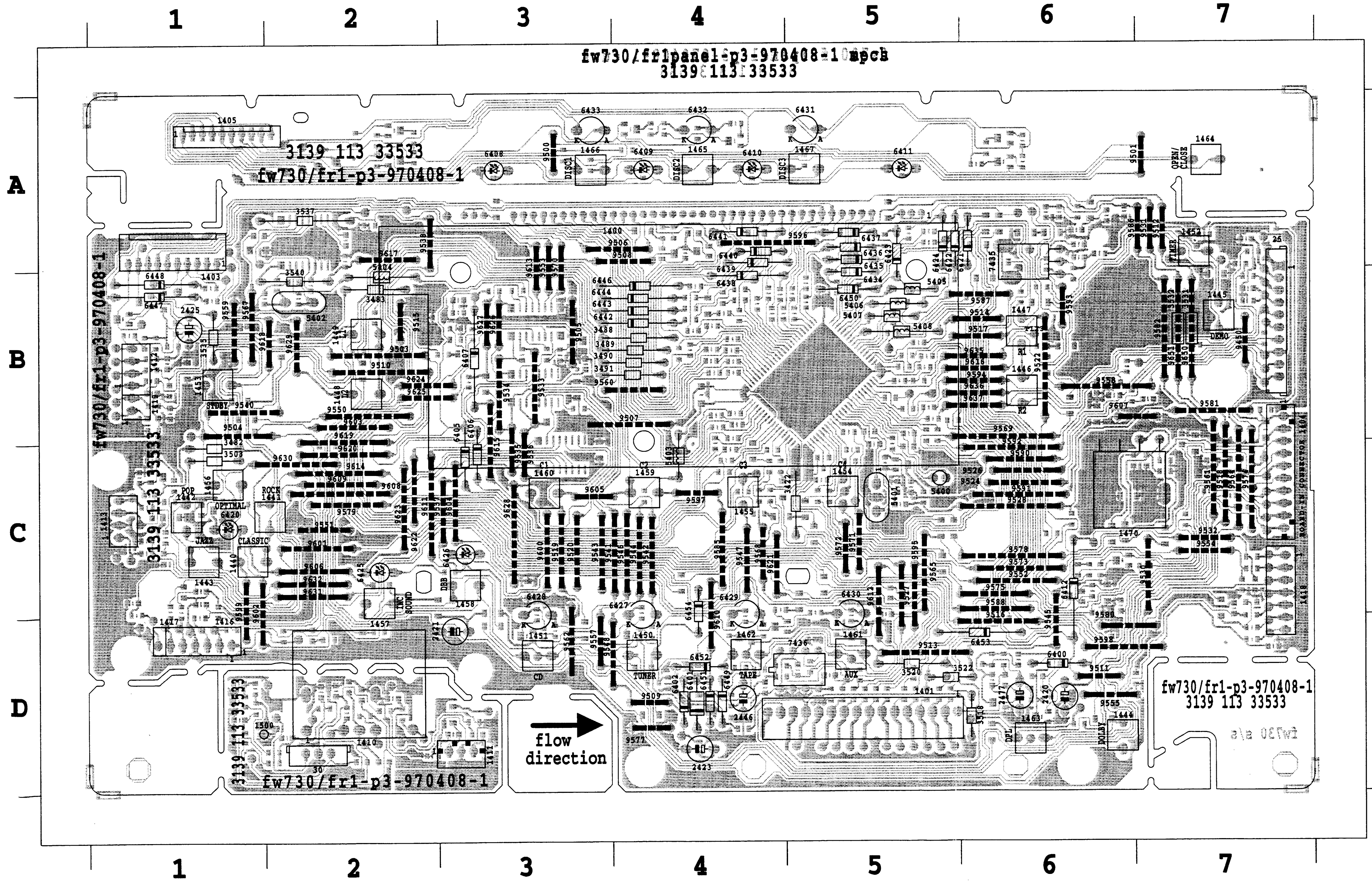


1400
13-BT-150GK
SHUFFLE
HSD
TIMER
DBB
3STEREO
PROLOGIC
NORMAL
PHANTOM
PROG
AUX
TUNER
RECORD
TIMER SET
CD ▷ TAPE
DUBBING
BAND
SHUFFLE
TIMER
FRONT
BACK
FM MW
SW LW
REC
STEREO
NR
AM PM
VOCAL
FADER
RDS
PLAY MODE
SET CLOCK
PROGRAM
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
RDS DECODER
NON-RDS VERSION
7437 SAA6579T
RDS PROCESSOR
oscillator
RDS VERSION /22 ONLY
7441
TMP87CN71AF
CPU
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
I/O PORT 0
I/O PORT 1
I/O PORT 3
I/O PORT 4
I/O PORT 5
I/O PORT 6
I/O PORT 7
I/O PORT 8
I/O PORT 9
Open Source w.80k pull down to VKK
Open Drain
Tri-State
IR EYE
GP1U28XP
7436 ST24C08XX1
CHINA
ALL OTHER VERSIONS
AUX-IN-1
AUX-IN
AUX-IN-2
LINE-OUT
BREAKAWAY
LINE_OUT PCB
1410
1411
AUX_L
AUX_R
LINE_L
LINE_R
CD
TUNER
TAPE
AUX
RED
GREEN
7438 74HCT4094
7439 74HCT4094
7440 74HCT4094
1470 EVQWEZF20
ROTARY ENCODER
R.E : FOR NON HVC VERSIONS
OPTIONS
Dolby Pro_Logic
Set Power
HVC
CD Optical Out
DOLBY
DPL
AUX
TAPE
TIMER
DEMO
R2
R1
L2
L1
TUNER
CD
STDBY
OPTIMAL
C4
C3
POP
JAZZ
INC SOUND
DBB
C2
C1
CLASSIC
ROCK
FADER
■ For CDC3 version.
▲ For CDSL version.
■ For provision only
/22
non/22
3401
47k
680k
FLASHING LEDS
CDC Backlight
CDC/CD KEY
DISC1
DISC2
DISC3
Open/Close
TO CONNECTOR 1403
1405
KEY1
KEY0
P05'
P06'
+F
CDC1LIT
CDC2LIT
CDC3LIT
LED-1
LED-2
CDC3
VIDEM
NC
NC
OE_LATCH
NC
SICL
NC
GND
GND
SILD
TRQ
DATA
SCK
PORE
RESET
SH_CLK
USRS1
STR_OUTP
USRS0
SW_INFO
GND
TO CD/CDC
1403
To Connector 1405
EOT SIGNAL CONDITIONERS
1404
GND
+G
AD1
EOTB
SOLB/MOTB
AD2
EOTA
SOLA/MOTA
AD3
NS/HS
TO ETF2
PROVISION
To LOGIC DECK
1417
1416
ENABLE
DATA
CLK
GND
Rec/ALC
Cr/Fe
Dolby

PCS 96 788

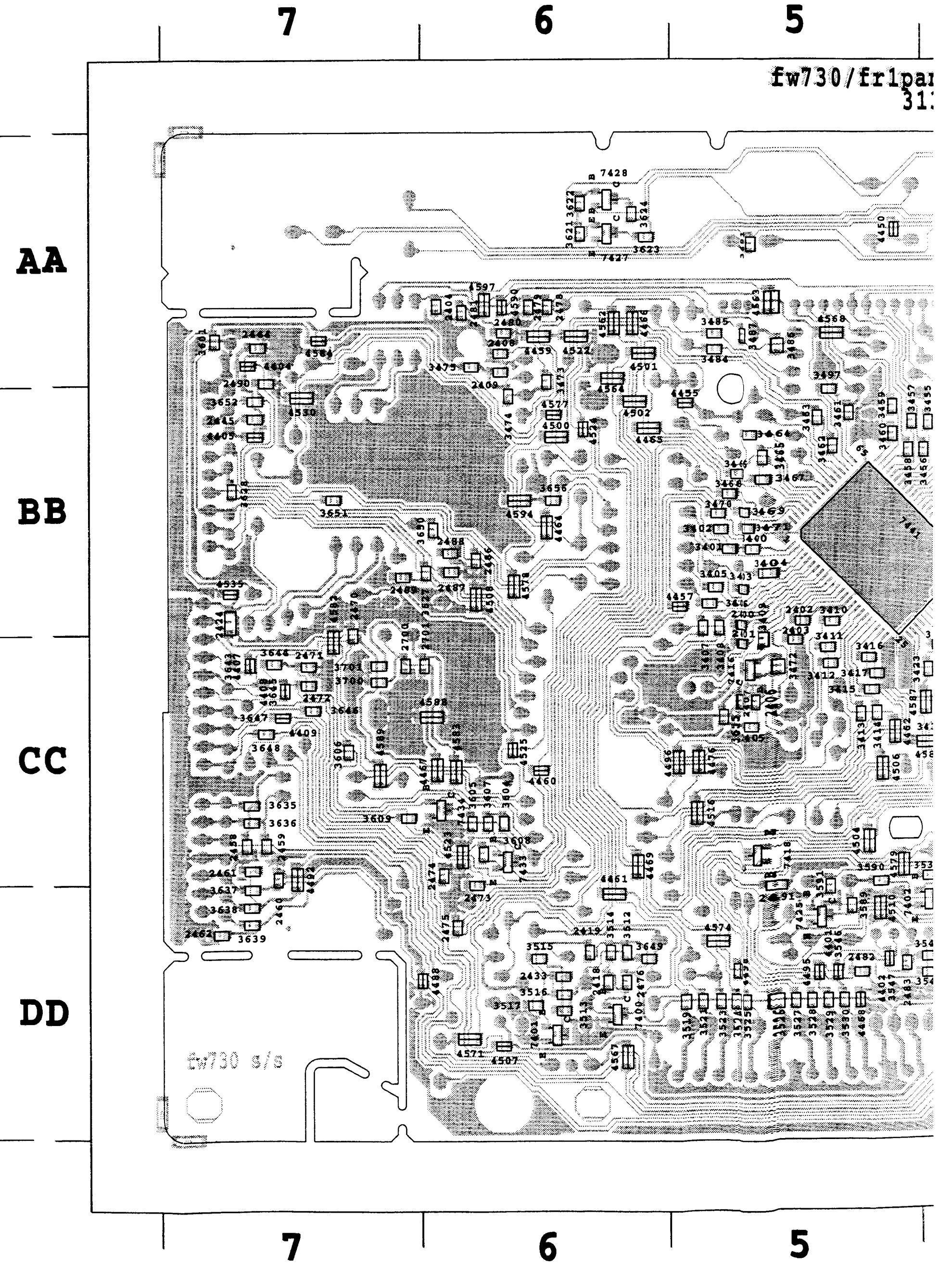
FRONT COMPONENT LAYOUT *(NON-HVC VERSION)*

25 B 7	1418 C 7	1451 D 3	1464 A 7	3482 C 1	3537 A 2	6402 D 4	6424 A 5	6444 B 4	9500 A 3	9514 B 6	9532 C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
30 D 2	1419 B 1	1452 A 7	1465 A 4	3483 B 2	3540 B 2	6405 C 3	6425 C 2	6446 B 4	9501 A 7	9516 D 6	9533 B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
1400 A 4	1440 C 1	1453 B 1	1466 A 3	3488 B 4	5400 C 5	6406 C 3	6426 C 3	6447 B 1	9503 B 2	9517 B 6	9534 B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
1401 D 5	1441 C 2	1454 C 5	1467 A 5	3489 B 4	5401 C 5	6407 B 3	6434 B 5	6448 B 1	9504 B 1	9518 C 7	9535 C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
1403 A 1	1442 C 1	1455 C 4	1470 C 6	3490 B 4	5402 B 2	6408 A 3	6435 A 5	6449 D 4	9505 B 3	9519 C 3	9536 C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
1404 C 7	1443 C 1	1456 C 1	1500 D 1	3491 B 4	5403 C 4	6409 A 4	6436 A 5	6450 B 5	9506 A 4	9520 C 3	9537 C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
1405 A 1	1444 D 6	1457 C 2	2420 D 6	3503 C 1	5404 B 2	6410 A 4	6437 A 5	6451 D 4	9507 B 4	9522 B 6	9538 A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
1410 D 2	1445 B 7	1458 C 3	2421 D 3	3518 D 6	5405 B 5	6411 A 5	6438 B 4	6452 D 4	9508 A 4	9524 C 6	9540 B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
1411 D 3	1446 B 6	1459 C 4	2423 D 4	3520 D 5	5406 B 5	6412 C 6	6439 A 4	6453 D 6	9509 D 4	9526 C 6	9541 C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	
1412 B 1	1447 B 6	1460 C 3	2425 B 1	3522 D 5	5407 B 5	6420 C 1	6440 A 4	6454 C 4	9510 B 2	9527 C 5	9542 C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
1413 C 1	1448 B 2	1461 D 5	2446 D 4	3531 B 7	5408 B 5	6421 A 6	6441 A 4	7435 A 6	9511 D 6	9528 C 6	9543 C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
1416 D 1	1449 B 2	1462 D 4	2477 D 6	3532 B 7	6400 D 6	6422 A 5	6442 B 4	7436 D 5	9512 A 7	9530 C 7	9544 C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	
1417 D 1	1450 D 4	1463 D 6	3422 C 5	3535 B 1	6401 D 4	6423 A 5	6443 B 4	9450 B 7	9513 D 5	9531 A 7	9545 D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6	

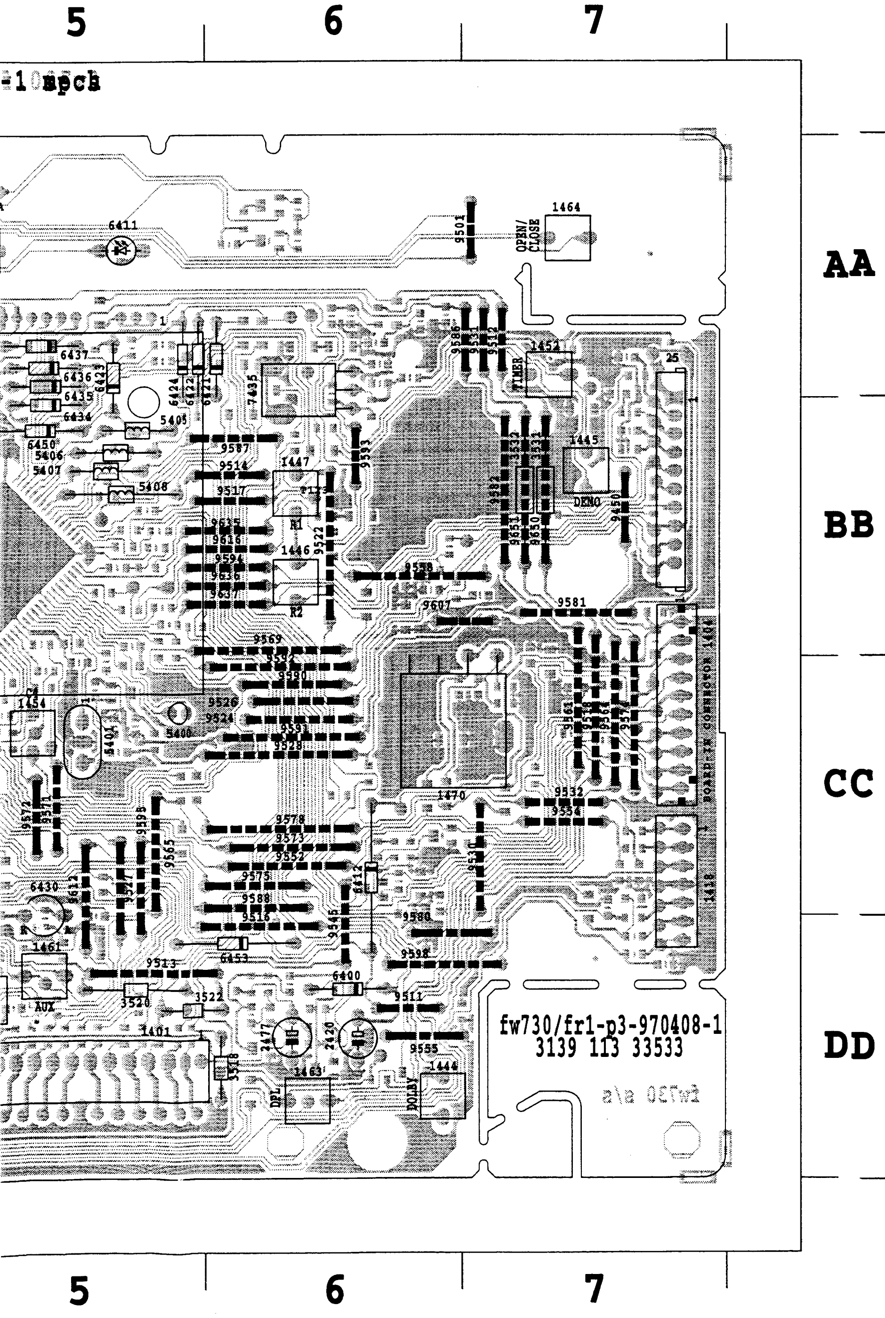

1
2
3
4
5
6
7
A
B
C
D
fw730/fr1panel-p3-970408-1 mpcb
3139 113 33533
3139 113 33533
fw730/fr1-p3-970408-1
fw730/fr1-p3-970408-1
3139 113 33533
fw730/fr1-p3-970408-1
3139 113 33533
fw730/fr1-p3-970408-1
fw730/fr1-p3-970408-1
3139 113 33533
flow
direction
OPEN/CLOSE
DISC1
DISC2
DISC3
STDBY
OPTIMAL
JAZZ
CLASSIC
POP
ROCK
DEMO
CD
TUNER
TAPE
AUX
DPL
DOLBY
BOARD-IN CONNECTOR
fw730 s/s

FRONT CHIP LAYOUT *(NON-HVC VERSION)*

2400 B 5	2429 A 1	2459 C 7	2486 B 6	3412 C 5	3437 B 4	3461 B 5	3487 A 5	3517 D
2401 C 5	2430 B 2	2460 C 7	2487 B 6	3413 C 5	3438 B 4	3462 B 5	3492 B 4	3519 D
2402 B 5	2431 A 2	2461 C 7	2488 B 6	3414 C 5	3439 B 4	3463 B 5	3493 B 4	3521 D
2403 C 5	2432 D 4	2462 D 7	2489 B 7	3415 C 5	3440 B 4	3464 B 5	3494 B 4	3523 D
2404 A 6	2433 D 6	2463 C 1	2490 A 7	3416 C 5	3441 B 4	3465 B 5	3496 B 4	3524 D
2405 C 5	2439 D 3	2464 D 2	2491 D 5	3417 C 5	3442 B 4	3466 B 5	3497 B 5	3525 D
2406 C 5	2440 D 3	2465 C 1	2492 C 1	3418 C 4	3443 B 4	3467 B 5	3498 D 4	3526 D
2407 C 5	2441 B 3	2466 C 1	2493 C 1	3419 C 4	3444 B 4	3468 B 5	3499 D 4	3527 D
2408 A 6	2442 B 3	2467 C 1	2495 D 1	3420 C 4	3445 B 4	3469 B 5	3500 C 1	3528 D
2409 A 6	2443 B 3	2468 C 1	2496 D 1	3421 C 4	3446 B 4	3470 B 5	3501 C 1	3529 D
2410 A 4	2444 A 7	2469 C 1	2700 C 7	3423 C 4	3447 B 4	3471 B 5	3502 C 1	3530 D
2411 A 4	2445 B 7	2470 C 7	2701 C 6	3424 C 4	3448 B 4	3472 C 5	3504 B 1	3533 C
2412 B 1	2447 D 2	2471 C 7	3400 B 5	3425 C 4	3449 B 4	3473 A 6	3505 B 1	3534 C
2413 B 1	2448 B 4	2472 C 7	3401 B 5	3426 C 4	3450 B 4	3474 B 6	3506 B 1	3536 D
2414 B 1	2449 D 2	2473 C 6	3402 B 5	3427 C 4	3451 B 4	3475 A 6	3507 B 1	3538 A
2415 B 1	2450 D 2	2474 C 6	3403 B 5	3428 C 4	3452 B 4	3476 A 4	3508 B 1	3539 A
2416 B 1	2451 C 1	2475 D 6	3404 B 5	3429 B 4	3453 B 4	3477 A 4	3509 B 1	3541 B
2417 B 1	2452 C 1	2476 D 6	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3510 B 1	3542 B
2418 D 6	2453 D 2	2478 A 6	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3511 B 1	3543 D
2419 D 6	2454 D 2	2479 A 6	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3512 D 6	3544 D
2422 A 1	2455 D 2	2480 A 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3513 D 6	3545 D
2424 B 7	2456 D 2	2481 A 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3514 D 6	3546 D
2427 B 2	2457 D 2	2482 D 5	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3515 D 6	3547 D
2428 B 2	2458 C 7	2483 D 5	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3516 D 6	3568 B

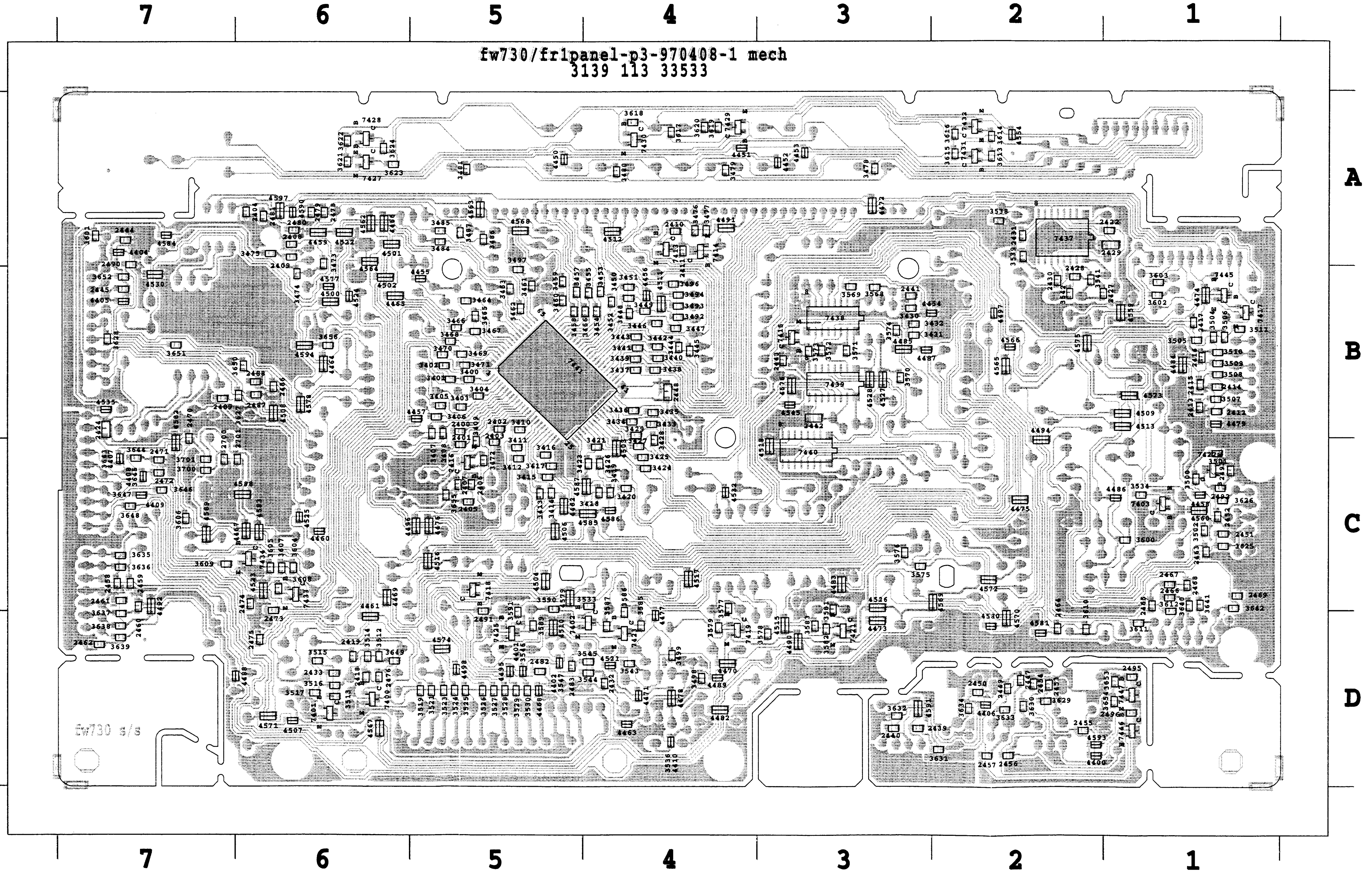

7
6
5
AA
BB
CC
DD
fw730/fr1pa
31
fw730 s/s

C 7	9546 C 4	9561 C 7	9578 C 6	9594 B 6	9608 C 2	9621 C 4	9636 B 6
B 3	9547 C 4	9562 D 3	9579 C 2	9595 C 5	9609 C 2	9622 C 2	9637 B 6
B 3	9548 D 4	9564 C 7	9580 D 6	9596 A 4	9610 D 4	9623 C 2	9650 B 7
C 3	9550 B 2	9565 C 5	9581 B 7	9597 C 4	9611 C 2	9624 B 2	9651 B 7
C 3	9551 C 2	9567 B 1	9582 B 7	9598 D 6	9612 C 5	9625 B 2	----
C 3	9552 C 6	9568 C 4	9585 C 4	9599 C 1	9613 A 3	9626 B 3	9515 B 2
A 2	9553 A 3	9569 B 6	9586 A 7	9600 C 3	9614 C 2	9627 B 3	9577 D 4
B 1	9554 C 7	9570 A 3	9587 B 6	9601 C 2	9615 B 3	9628 C 3	9607 B 6
C 4	9555 D 6	9571 C 5	9588 C 6	9602 C 1	9616 B 6	9629 B 2	
C 4	9557 D 3	9572 C 5	9590 C 6	9603 B 2	9617 A 2	9630 C 2	
C 3	9558 B 6	9573 C 6	9591 C 6	9604 C 3	9618 B 2	9631 C 2	
C 4	9559 B 1	9574 C 7	9592 C 6	9605 C 3	9619 B 2	9632 C 2	
D 6	9560 B 4	9575 C 6	9593 B 6	9606 C 2	9620 C 2	9635 B 6	



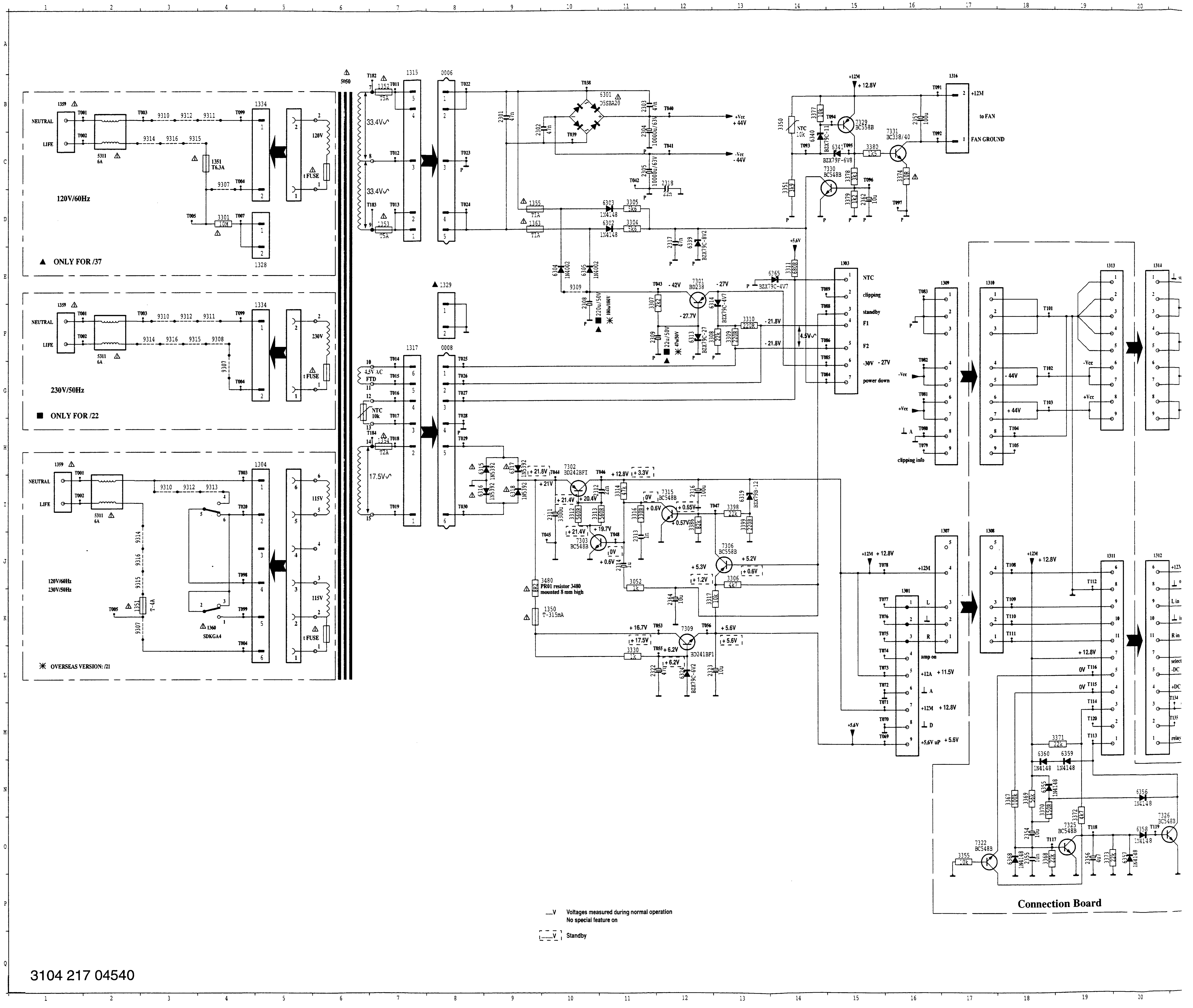
FRONT CHIP LAYOUT *(NON-HVC VERSION)*

2400 B 5	2429 A 1	2459 C 7	2486 B 6	3412 C 5	3437 B 4	3461 B 5	3487 A 5	3517 D 6	3569 B 3	3604 C 6	3628 B 7	3652 B 7	4457 B 5	4483 C 3	4510 D 5	4563 A 5	4587 C 4	7428 A 6
2401 C 5	2430 B 2	2460 C 7	2487 B 6	3413 C 5	3438 B 4	3462 B 5	3492 B 4	3519 D 5	3570 B 3	3605 C 6	3629 D 2	3653 D 1	4458 C 1	4484 B 1	4511 B 4	4564 A 6	4588 C 6	7429 A 4
2402 B 5	2431 A 2	2461 C 7	2488 B 6	3414 C 5	3439 B 4	3463 B 5	3493 B 4	3521 D 5	3571 B 3	3606 C 7	3630 D 2	3654 D 1	4459 A 6	4485 B 3	4512 A 4	4565 B 2	4589 C 7	7430 A 4
2403 C 5	2432 D 4	2462 D 7	2489 B 7	3415 C 5	3440 B 4	3464 B 5	3494 B 4	3523 D 5	3572 B 3	3607 C 6	3631 D 2	3655 C 5	4460 C 6	4486 C 1	4513 B 1	4566 B 2	4590 A 6	7431 A 2
2404 A 6	2433 D 6	2463 C 1	2490 A 7	3416 C 5	3441 B 4	3465 B 5	3496 B 4	3524 D 5	3573 B 3	3608 C 6	3632 D 3	3656 B 6	4461 D 6	4487 B 3	4515 D 3	4567 D 6	4591 D 3	7432 A 2
2405 C 5	2439 D 3	2464 D 2	2491 D 5	3417 C 5	3442 B 4	3466 B 5	3497 B 5	3525 D 5	3574 B 3	3609 C 7	3633 D 2	3700 C 7	4462 C 5	4488 D 7	4516 C 5	4568 A 5	4593 D 2	7433 C 6
2406 C 5	2440 D 3	2465 C 1	2492 C 1	3418 C 4	3443 B 4	3467 B 5	3498 D 4	3526 D 5	3575 C 3	3610 D 2	3634 D 2	3701 C 7	4463 D 4	4489 D 4	4517 C 4	4569 C 2	4594 B 6	7434 C 6
2407 C 5	2441 B 3	2466 C 1	2493 C 1	3419 C 4	3444 B 4	3468 B 5	3499 D 4	3527 D 5	3576 C 3	3611 D 1	3635 C 7	4400 D 2	4464 B 6	4490 D 3	4518 C 3	4570 D 2	4597 A 6	7437 A 2
2408 A 6	2442 B 3	2467 C 1	2495 D 1	3420 C 4	3445 B 4	3469 B 5	3500 C 1	3528 D 5	3577 C 4	3612 D 1	3636 C 7	4401 D 5	4465 B 6	4491 A 4	4521 D 4	4571 D 6	7400 D 6	7438 B 3
2409 A 6	2443 B 3	2468 C 1	2496 D 1	3421 C 4	3446 B 4	3470 B 5	3501 C 1	3529 D 5	3578 D 3	3613 A 2	3637 D 7	4402 D 5	4466 A 6	4492 C 7	4522 A 6	4572 C 2	7401 D 6	7439 B 3
2410 A 4	2444 A 7	2469 C 1	2700 C 7	3423 C 4	3447 B 4	3471 B 5	3502 C 1	3530 D 5	3579 D 4	3614 A 2	3638 D 7	4404 A 7	4467 C 6	4494 C 2	4523 C 6	4573 B 1	7402 D 4	7440 C 3
2411 A 4	2445 B 7	2470 C 7	2701 C 6	3424 C 4	3448 B 4	3472 C 5	3504 B 1	3533 C 4	3581 C 3	3615 A 2	3639 D 7	4405 B 7	4468 D 5	4495 D 5	4524 B 6	4574 D 5	7403 C 1	7441 B 5
2412 B 1	2447 D 2	2471 C 7	3400 B 5	3425 C 4	3449 B 4	3473 A 6	3505 B 1	3534 C 1	3582 D 3	3616 A 2	3640 C 1	4406 D 2	4469 C 6	4496 C 5	4525 C 6	4575 B 2	7413 A 4	7445 B 1
2413 B 1	2448 B 4	2472 C 7	3401 B 5	3426 C 4	3450 B 4	3474 B 6	3506 B 1	3536 D 4	3583 D 3	3617 A 4	3641 C 1	4407 C 7	4470 D 4	4497 B 2	4526 C 3	4576 B 3	7414 A 4	7446 D 1
2414 B 1	2449 D 2	2473 C 6	3402 B 5	3427 C 4	3451 B 4	3475 A 6	3507 B 1	3538 A 2	3585 D 4	3618 A 4	3642 C 1	4408 C 7	4471 D 4	4498 D 5	4527 B 3	4577 B 6	7415 B 3	7447 D 1
2415 B 1	2450 D 2	2474 C 6	3403 B 5	3428 C 4	3452 B 4	3476 A 4	3508 B 1	3539 A 2	3586 D 4	3619 A 4	3643 C 7	4409 C 7	4472 A 3	4500 B 6	4528 B 3	4578 B 6	7416 C 5	----
2416 B 1	2451 C 1	2475 D 6	3404 B 5	3429 B 4	3453 B 4	3477 A 4	3509 B 1	3541 B 2	3587 D 4	3620 A 4	3644 C 7	4410 D 4	4473 D 3	4501 A 6	4530 B 7	4579 C 5	7417 B 1	
2417 B 1	2452 C 1	2476 D 6	3405 B 5	3430 B 3	3454 B 4	3478 A 3	3510 B 1	3542 B 2	3589 D 5	3621 A 6	3645 C 7	4450 A 5	4474 B 1	4502 B 6	4532 C 4	4580 D 2	7418 C 5	
2418 D 6	2453 D 2	2478 A 6	3406 B 5	3431 B 3	3455 B 4	3479 A 4	3511 B 1	3543 D 4	3590 C 5	3622 A 6	3646 C 7	4451 A 4	4475 C 2	4503 C 4	4535 B 7	4581 D 2	7419 D 4	
2419 D 6	2454 D 2	2479 A 6	3407 B 5	3432 B 3	3456 B 4	3480 A 4	3512 D 6	3544 D 4	3591 D 5	3623 A 6	3647 C 7	4452 A 3	4476 C 5	4504 C 5	4545 B 3	4582 C 7	7421 D 3	
2422 A 1	2455 D 2	2480 A 6	3408 B 5	3433 B 4	3457 B 5	3481 A 5	3513 D 6	3545 D 4	3600 C 1	3624 A 6	3648 C 7	4453 A 3	4477 D 4	4506 C 5	4554 A 2	4583 C 6	7422 C 1	
2424 B 7	2456 D 2	2481 A 6	3409 C 5	3434 B 4	3458 B 5	3484 A 5	3514 D 6	3546 D 5	3601 A 7	3625 C 1	3649 D 6	4454 B 3	4478 D 4	4507 D 6	4559 B 1	4584 A 7	7423 D 4	
2427 B 2	2457 D 2	2482 D 5	3410 B 5	3435 B 4	3459 B 5	3485 A 5	3515 D 6	3547 D 5	3602 B 1	3626 C 1	3650 B 6	4455 B 5	4479 B 1	4508 B 6	4560 C 1	4585 C 4	7425 D 5	
2428 B 2	2458 C 7	2483 D 5	3411 C 5	3436 B 4	3460 B 5	3486 A 5	3516 D 6	3568 B 3	3603 B 1	3627 B 6	3651 B 7	4456 B 4	4482 D 4	4509 B 1	4562 A 6	4586 C 4	7427 A 6	



POWER 1 CIRCUIT
(2x100W VERSION)

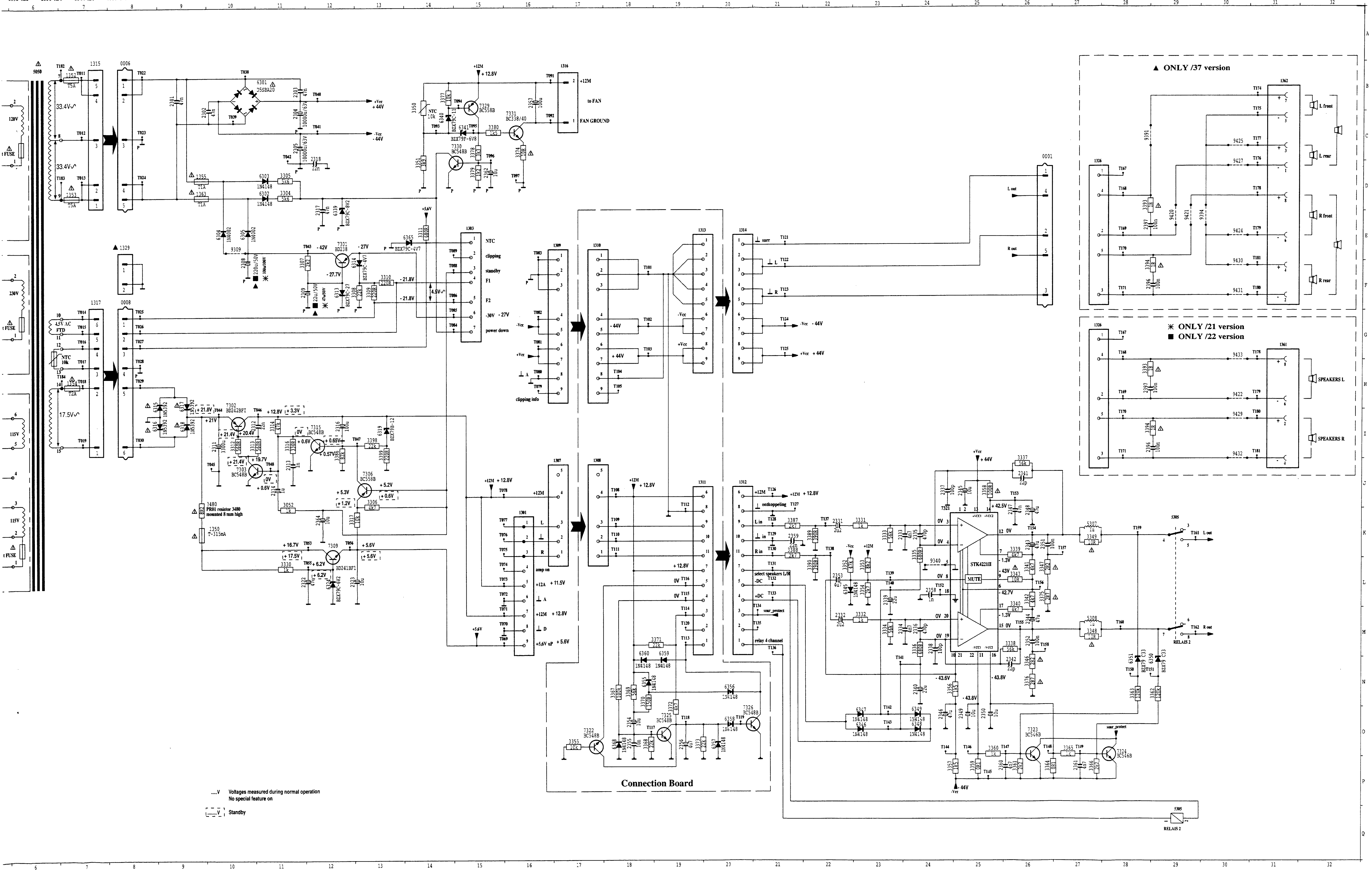
0001	C26
0006	A 8
0008	F 8
1301	K16
1303	E15
1304	H 4
1307	J16
1308	J17
1309	E16
1310	E17
1311	J19
1312	J20
1313	E19
1314	E20
1315	A 7
1316	B17
1317	F 7
1326	G27
1326	D27
1328	E 4
1329	E 8
1334	F 4
1334	B 4
1350	K10
1351	K 2
1352	B 7
1353	D 7
1354	H 7
1355	D 9
1359	B 1
1359	H 1
1359	F 1
1360	K 4
1361	G31
1362	B31
1363	D 9
2301	B 9
2302	B 9
2303	B11
2304	B11
2305	C11
2308	E10
2309	F11
2311	I10
2312	I10
2313	J11
2314	J11
2316	I12
2317	D12
2318	C12
2322	L11
2323	L12
2331	K22
2332	M22
2333	K23
2334	M23
2335	K24
2336	M24
2337	J24
2338	M24
2339	L23
2340	N24
2341	J26
2342	N26
2343	K26
2344	M26
2345	J25
2346	O24
2347	K26
2348	K26
2349	O25
2350	O25
2351	K26
2352	M26
2353	L22
2354	O18
2355	O18
2356	O19
2357	B16
2358	L24
2359	K21
2360	P25
2361	P27
2362	D15
2364	K12
2396	F28
2396	I28
2397	H28
2397	E28
3052	K11
3301	D 4
3304	D11
3305	D11
3306	J13
3307	E11
3308	F13
3309	F13
3310	F13
3311	E14
3312	I10
3313	I10
3314	I11
3316	I11
3317	K12
3330	L11
3331	K23
3332	M23
3333	K23
3334	M23
3335	K24
3336	M24
3337	J26
3338	M26
3339	K26
3340	L26
3341	L26
3342	L26
3343	L26
3346	N26
3347	L26
3348	M27
3349	K27
3350	B14
3351	C14
3352	L22
3353	L23
3354	L23
3355	O17
3356	N24
3357	P24
3358	J25
3359	P25
3360	O25
3361	P26
3362	N29
3363	N28
3364	P26
3365	O27
3366	P27
3367	N18
3368	O18
3369	N18
3370	N18
3371	M19
3372	N19
3373	O19
3374	C16
3375	L26
3376	N26
3377	B14
3378	C15
3379	D15
3380	C15
3386	I12
3387	K21
3388	K21
3389	K22
3390	L22
3393	H28
3393	D28
3394	I28
3394	F28
3398	I13
3399	I13
3480	J10
5305	K29
5305	O29
5307	K27
5308	M27
5311	F 2
5311	C 2
5311	I 2
6301	B11
6302	D11
6303	D11
6304	E10
6305	E10
6313	F12
6314	E13
6315	H 8
6316	I 8
6317	H 9
6318	I 9
6319	I13
6324	L12
6339	D12



NEUTRAL
LIFE
5311 6A
1359
1334
1351 T6.3A
120V/60Hz
230V/50Hz
120V/60Hz 230V/50Hz
120V
230V
115V
t FUSE
1328
▲ ONLY FOR /37
■ ONLY FOR /22
✳ OVERSEAS VERSION: /21
1360 SDKGA4
5950
1315
1317
0006
0008
33.4V∿
17.5V∿
4.5V AC FTD
NTC 10k
1352 T5A
1353 T5A
1354 T2A
1355 T1A
1363 T1A
1329
6301 D5SBA20
+Vcc +44V
-Vcc -44V
2303 10000u/63V
2304 10000u/63V
1350 T-315mA
3480 PR01 resistor 3480 mounted 8 mm high
7301 BD238
7302 BD242BFI
7309 BD241BFI
7315 BC548B
7306 BC558B
7330 BC548B
7329 BC558B
7331 BC338/40
BZX79F-6V8
BZX79C-11
BZX79C-4V7
BZX79C-27
BZX79C-8V2
BZX79C-6V2
BZX79B-12
1N4148
1N4002
1N5392
-42V
-27V
-27.7V
-21.8V
4.5V∿
+21.8V
+21V
+21.4V
+20.4V
+12.8V
+3.3V
+0.6V
+0.65V
+0.57V
+19.7V
+5.3V
+5.2V
+1.2V
+16.7V
+17.5V
+6.2V
+5.6V
+12M
1316
to FAN
FAN GROUND
1303
NTC
clipping
standby
F1
F2
-30V -27V
power down
1309
1310
1313
1314
clipping info
1307
1308
1301
1311
1312
L
R
amp on
+12A +11.5V
+12M +12.8V
+5.6V uP +5.6V
-44V
+44V
Connection Board
7322 BC548B
7325 BC548B
7326 BC548B
....V Voltages measured during normal operation
No special feature on
Standby

3104 217 04540

2317	D12
2318	C12
2322	L11
2323	L12
2331	K22
2332	M22
2333	K23
2334	M23
2335	K24
2336	M24
2337	J24
2338	M24
2339	L23
2340	N24
2341	J26
2342	N26
2343	K26
2344	M26
2345	J25
2346	O24
2347	K26
2348	K26
2349	O25
2350	O25
2351	K26
2352	M26
2353	L22
2354	O18
2355	O18
2356	O19
2357	B16
2358	L24
2359	K21
2360	P25
2361	P27
2362	D15
2364	K12
2396	F28
2396	I28
2397	H28
2397	E28
3052	K11
3301	D 4
3304	D11
3305	D11
3306	J13
3307	E11
3308	F13
3309	F13
3310	F13
3311	E14
3312	I10
3313	I10
3314	I11
3316	I11
3317	K12
3330	L11
3331	K23
3332	M23
3333	K23
3334	M23
3335	K24
3336	M24
3337	J26
3338	M26
3339	K26
3340	L26
3341	L26
3342	L26
3343	L26
3346	N26
3347	L26
3348	M27
3349	K27
3350	B14
3351	C14
3352	L22
3353	L23
3354	L23
3355	O17
3356	N24
3357	P24
3358	J25
3359	P25
3360	O25
3361	P26
3362	N29
3363	N28
3364	P26
3365	O27
3366	P27
3367	N18
3368	O18
3369	N18
3370	N18
3371	M19
3372	N19
3373	O19
3374	C16
3375	L26
3376	N26
3377	B14
3378	C15
3379	D15
3380	C15
3386	I12
3387	K21
3388	K21
3389	K22
3390	L22
3393	H28
3393	D28
3394	I28
3394	F28
3398	I13
3399	I13
3480	J10
5305	K29
5305	Q29
5307	K27
5308	M27
5311	F 2
5311	C 2
5311	I 2
6301	B11
6302	D11
6303	D11
6304	E10
6305	E10
6313	F12
6314	E13
6315	H 8
6316	I 8
6317	H 9
6318	I 9
6319	I13
6324	L12
6339	D12
6340	C14
6341	C15
6345	L22
6346	O23
6347	N23
6348	O24
6349	O24
6350	N28
6351	N28
6355	N18
6356	N20
6357	O20
6358	O20
6359	M19
6360	M18
6365	E14
6368	O18
7301	E12
7302	H10
7303	J10
7306	J13
7309	K12
7315	I12
7321	K24
7322	O17
7323	O26
7324	O28
7325	O19
7326	O20
7329	B15
7330	C15
7331	C16
9307	C 4
9307	K 2
9307	G 4
9308	F 4
9309	E10
9310	F 3
9310	B 3
9310	I 3
9311	F 4
9311	B 4
9312	B 3
9312	F 3
9312	I 3
9313	I 4
9314	C 3
9314	F 3
9314	J 2
9315	C 3
9315	F 3
9315	J 2
9316	F 3
9316	J 2
9316	C 3
9340	L24
9391	C28
9394	E30
9420	E29
9421	E29
9422	H30
9424	E30
9425	C30
9427	D30
9429	I30
9430	F30
9431	F30
9432	I30
9433	G30

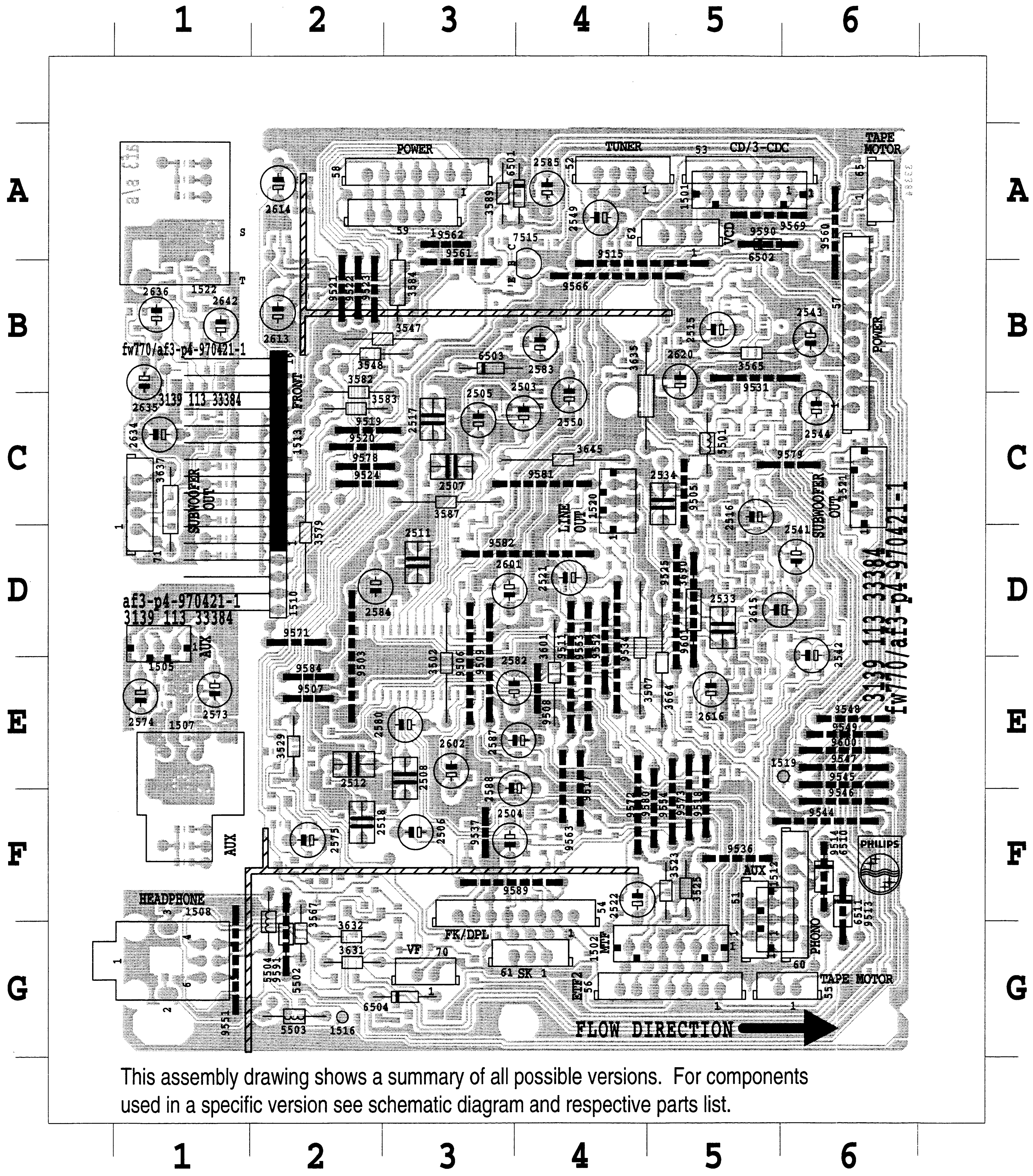

5050
1315
0006
1317
0008
120V
230V
115V
115V
FUSE
FUSE
FUSE
33.4V
33.4V
17.5V
45V AC FTD
NTC 10k
T5A
T2A
1329
6301 25SBA20
+Vcc +44V
-Vcc -44V
1316
+12M
to FAN
FAN GROUND
7329 BC558B
7330 BC548B
7331 BC338/40
BZX79F-6V8
1303
NTC
clipping
standby
F1
F2
-30V -27V
power down
7301 BD238
-42V
-27V
-27.7V
-21.8V
4.5V
BZX79C-4V7
7302 BD242BFI
7303 BC548B
7315 BC548B
7306 BC558B
7309 BD241BFI
+21.8V
+21V
+21.4V
+20.4V
+19.7V
+12.8V
+3.3V
+5.3V
+1.2V
+5.2V
+0.6V
+16.7V
+17.5V
+6.2V
+5.6V
3480 PR01 resistor 3480 mounted 8 mm high
1350 T-315mA
1309
1310
1313
1314
1307
1308
1301
1311
1312
clipping info
amp on
+12A +11.5V
+12M +12.8V
+5.6V uP +5.6V
surr
L
R
0001
L out
R out
ontkoppeling
L in
R in
select speakers L/R
-DC
+DC
soar_protect
relay 4 channel
Connection Board
7321
STK4231II
MUTE
+42.5V
-42.7V
-43.6V
-43.8V
+43V
-1.3V
5307
5308
5305
RELAIS 2
L out
R out
BZX79 C33
7322 BC548B
7325 BC548B
7326 BC548B
7323 BC546B
7324 BC546B
▲ ONLY /37 version
1326
1362
L front
L rear
R front
R rear
✳ ONLY /21 version
■ ONLY /22 version
1361
SPEAKERS L
SPEAKERS R

___V Voltages measured during normal operation
No special feature on

[___V] Standby

PCS 96 790

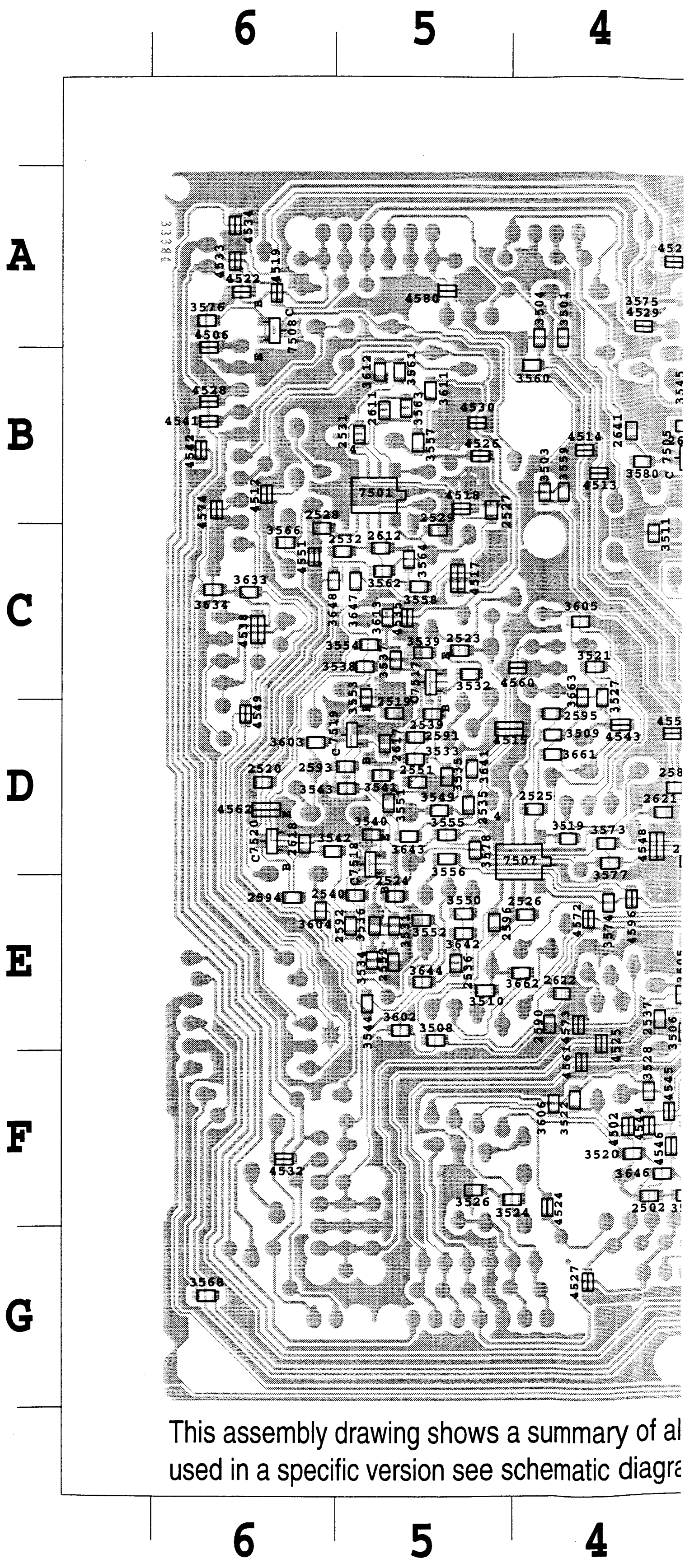
AF3 COMPONENT LAYOUT


1
2
3
4
5
6
A
B
C
D
E
F
G
POWER
TUNER
CD/3-CDC
TAPE MOTOR
FRONT
SUBWOOFER OUT
LINE OUT
AUX
HEADPHONE
FK/DPL
VF
61 SK
MTR
ETF2
PHONO
PHILIPS
fw770/af3-p4-970421-1
3139 113 33384
af3-p4-970421-1
FLOW DIRECTION

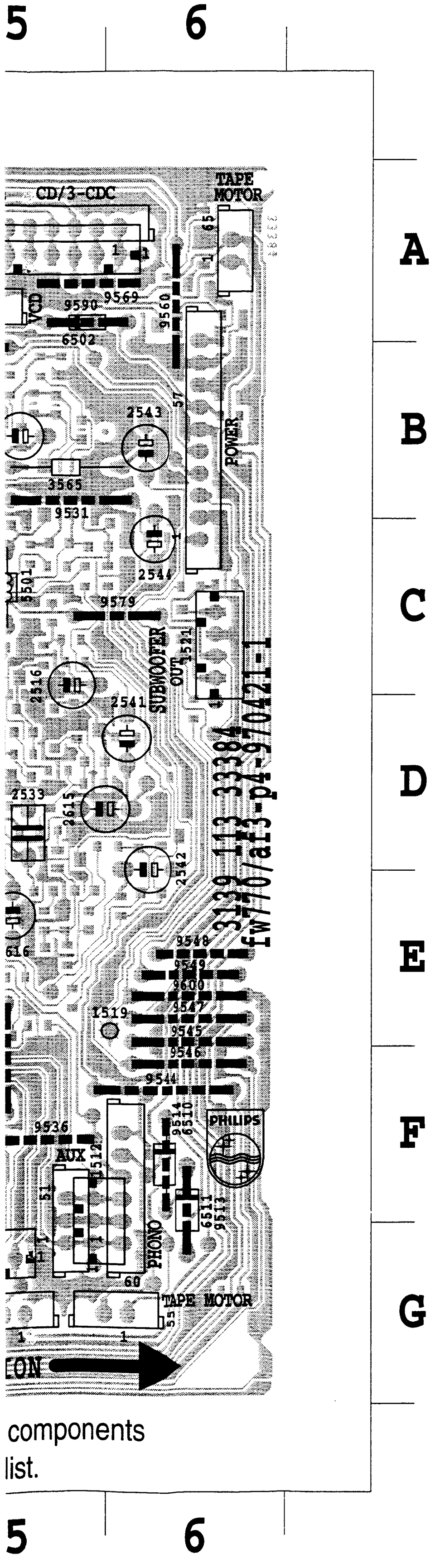
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

51	F	5
52	A	4
53	A	5
54	F	4
55	G	6
56	G	5
57	B	6
58	A	3
59	A	3
60	F	6
61	G	4
62	A	5
65	A	6
70	G	3
71	C	1
1501	A	5
1502	G	5
1505	D	1
1507	E	1
1508	G	1
1510	C	2
1512	F	5
1513	C	2
1516	G	2
1518	E	6
1520	C	4
1521	C	6
1522	A	1
2503	C	4
2504	F	3
2505	C	3
2506	F	3
2507	C	3
2508	E	3
2511	D	3
2512	E	2
2515	B	5
2516	C	5
2517	C	3
2518	F	2
2521	D	4
2522	F	4
2533	D	5
2534	C	5
2541	D	6
2542	D	6
2543	B	6
2544	C	6
2549	A	4
2550	C	4
2573	E	1
2574	E	1
2575	F	2
2580	E	3
2582	E	3
2583	B	4
2584	D	2
2585	A	4
2587	E	4
2588	F	4
2601	D	3
2602	E	3
2613	B	2
2614	A	2
2615	D	6
2616	E	5
2620	B	5
2634	C	1
2635	B	1
2636	B	1
2642	B	1
3502	E	3
3507	D	4
3523	F	5
3525	F	5
3529	E	2
3547	B	2
3548	B	2
3565	B	5
3567	G	2
3579	D	2
3582	C	2
3583	C	2
3584	B	3
3587	C	3
3589	A	3
3601	E	4
3631	G	2
3632	G	2
3635	C	4
3637	C	1
3645	C	4
3664	E	5
5501	C	5
5502	G	2
5503	G	2
5504	G	2
6501	A	4
6502	A	5
6503	B	3
6504	G	3
6510	F	6
6511	F	6
7515	B	4
9503	E	2
9505	C	5
9506	E	3
9507	E	2
9508	E	4
9509	E	3
9511	E	4
9513	F	6
9514	F	6
9515	B	4
9517	F	4
9518	F	5
9519	C	2
9520	C	2
9521	B	2
9522	B	2
9523	B	2
9524	C	2
9525	D	5
9531	B	5
9534	D	4
9536	F	5
9537	F	3
9544	F	6
9545	E	6
9546	F	6
9547	E	6
9548	E	6
9549	E	6
9551	G	1
9552	D	4
9553	E	4
9554	F	5
9560	A	6
9561	B	3
9562	A	3
9563	E	4
9566	B	4
9569	A	5
9571	D	2
9572	F	4
9573	F	5
9578	C	2
9579	C	6
9580	F	5
9581	C	4
9582	D	4
9584	E	2
9589	F	3
9590	A	5
9591	G	2
9600	E	6
9601	D	5

AF3 CHIP LAYOUT


6
5
4
A
B
C
D
E
F
G

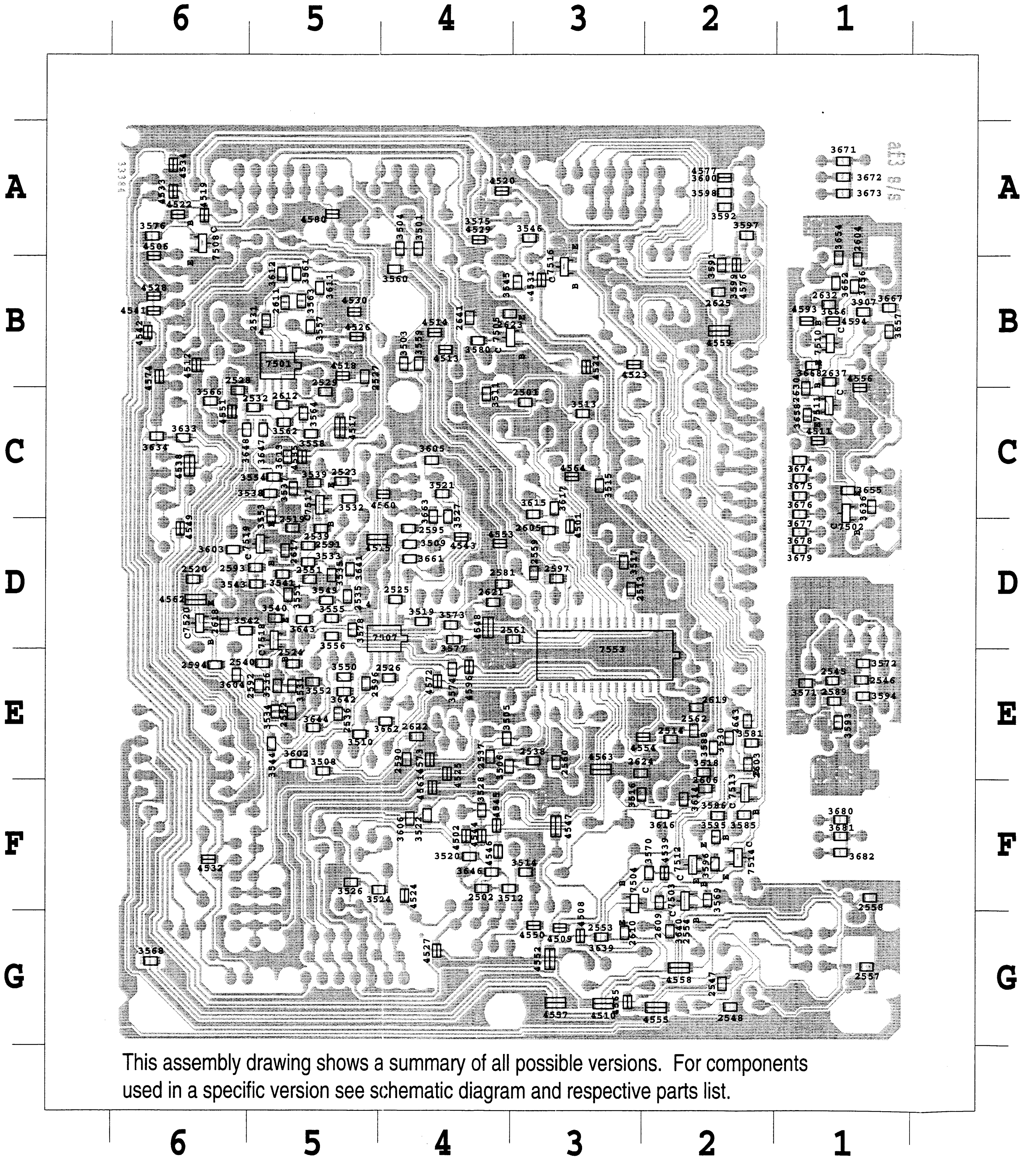
This assembly drawing shows a summary of al
used in a specific version see schematic diagra



components
list.

51	F	5	2587	E	4	9519	C	2
52	A	4	2588	F	4	9520	C	2
53	A	5	2601	D	3	9521	B	2
54	F	4	2602	E	3	9522	B	2
55	G	6	2613	B	2	9523	B	2
56	G	5	2614	A	2	9524	C	2
57	B	6	2615	D	6	9525	D	5
58	A	3	2616	E	5	9531	B	5
59	A	3	2620	B	5	9534	D	4
60	F	6	2634	C	1	9536	F	5
61	G	4	2635	B	1	9537	F	3
62	A	5	2636	B	1	9544	F	6
65	A	6	2642	B	1	9545	E	6
70	G	3	3502	E	3	9546	F	6
71	C	1	3507	D	4	9547	E	6
1501	A	5	3523	F	5	9548	E	6
1502	G	5	3525	F	5	9549	E	6
1505	D	1	3529	E	2	9551	G	1
1507	E	1	3547	B	2	9552	D	4
1508	G	1	3548	B	2	9553	E	4
1510	C	2	3565	B	5	9554	F	5
1512	F	5	3567	G	2	9560	A	6
1513	C	2	3579	D	2	9561	B	3
1516	G	2	3582	C	2	9562	A	3
1518	E	6	3583	C	2	9563	E	4
1520	C	4	3584	B	3	9566	B	4
1521	C	6	3587	C	3	9569	A	5
1522	A	1	3589	A	3	9571	D	2
2503	C	4	3601	E	4	9572	F	4
2504	F	3	3631	G	2	9573	F	5
2505	C	3	3632	G	2	9578	C	2
2506	F	3	3635	C	4	9579	C	6
2507	C	3	3637	C	1	9580	F	5
2508	E	3	3645	C	4	9581	C	4
2511	D	3	3664	E	5	9582	D	4
2512	E	2	5501	C	5	9584	E	2
2515	B	5	5502	G	2	9589	F	3
2516	C	5	5503	G	2	9590	A	5
2517	C	3	5504	G	2	9591	G	2
2518	F	2	6501	A	4	9600	E	6
2521	D	4	6502	A	5	9601	D	5
2522	F	4	6503	B	3			
2533	D	5	6504	G	3			
2534	C	5	6510	F	6			
2541	D	6	6511	F	6			
2542	D	6	7515	B	4			
2543	B	6	9503	E	2			
2544	C	6	9505	C	5			
2549	A	4	9506	E	3			
2550	C	4	9507	E	2			
2573	E	1	9508	E	4			
2574	E	1	9509	E	3			
2575	F	2	9511	E	4			
2580	E	3	9513	F	6			
2582	E	3	9514	F	6			
2583	B	4	9515	B	4			
2584	D	2	9517	F	4			
2585	A	4	9518	F	5			

AF3 CHIP LAYOUT

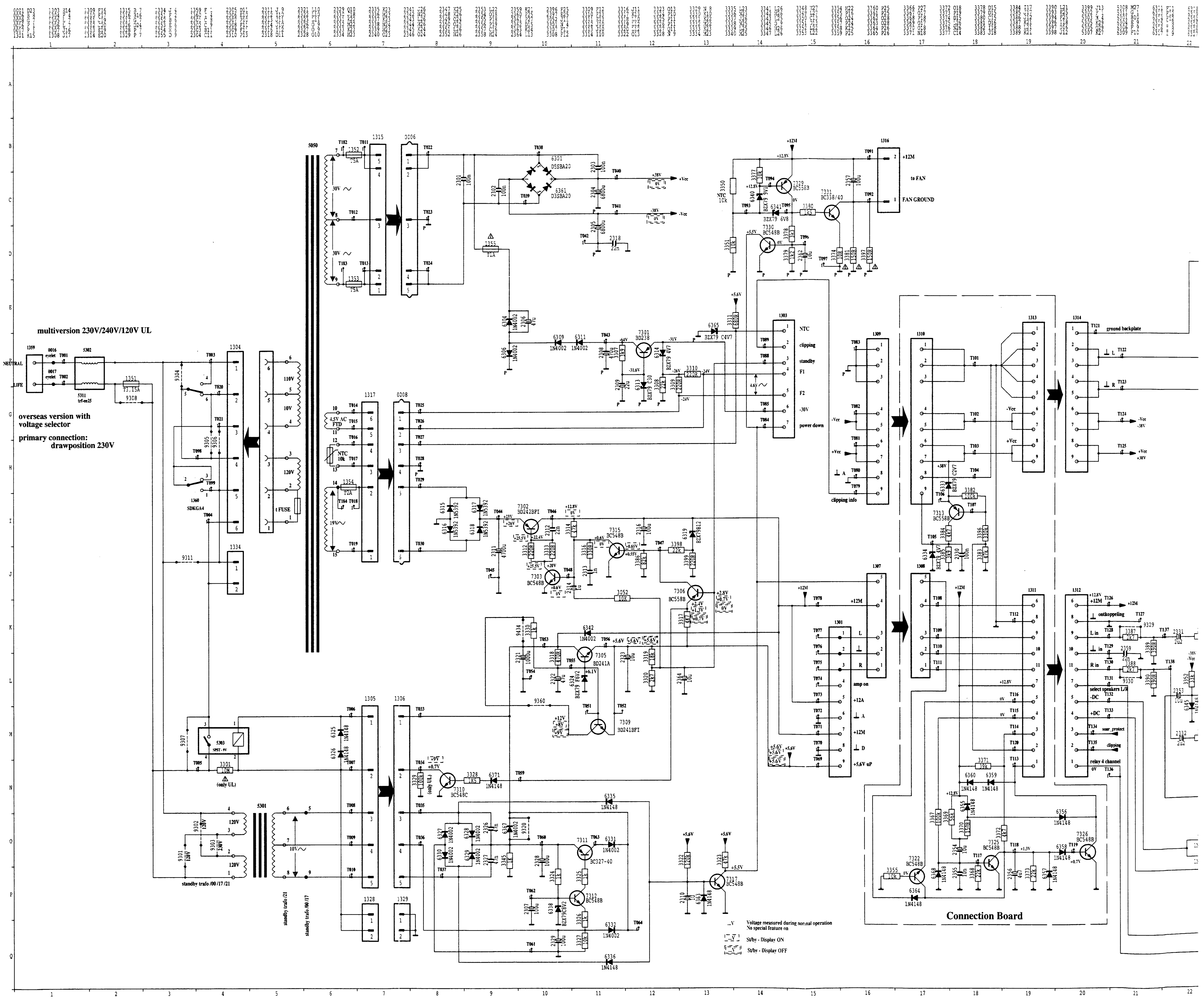


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2501	C	3	2623	B	4	3558	C	5	3652	B	1
2502	F	4	2624	E	3	3559	B	4	3654	B	1
2513	D	3	2625	B	2	3560	B	4	3655	C	1
2514	E	2	2630	C	1	3561	B	5	3656	B	1
2519	D	5	2632	B	1	3562	C	5	3657	B	1
2520	D	6	2637	B	1	3563	B	5	3658	C	1
2523	C	5	2641	B	4	3564	C	5	3661	D	4
2524	E	5	2643	E	2	3566	C	6	3662	E	4
2525	D	4	3501	A	4	3568	G	6	3663	C	4
2526	E	4	3503	B	4	3569	F	2	3666	B	1
2527	B	5	3504	A	4	3570	F	2	3667	B	1
2528	C	6	3505	E	4	3571	E	1	3668	B	1
2529	C	5	3506	E	4	3572	E	1	3671	A	1
2531	B	5	3508	E	5	3573	D	4	3672	A	1
2532	C	5	3509	D	4	3574	E	4	3673	A	1
2535	D	5	3510	E	5	3575	A	4	3674	C	1
2536	E	5	3511	C	4	3576	A	6	3675	C	1
2537	E	4	3512	F	4	3577	D	4	3676	C	1
2538	E	3	3513	C	3	3578	D	5	3677	C	1
2539	D	5	3514	F	3	3580	B	4	3678	D	1
2540	E	5	3515	C	3	3581	E	2	3679	D	1
2545	E	1	3516	F	3	3585	F	2	3680	F	1
2546	E	1	3517	D	3	3586	F	2	3681	F	1
2547	G	2	3518	E	2	3588	E	2	3682	F	1
2548	G	2	3519	D	4	3591	B	2	3907	B	1
2551	D	5	3520	F	4	3592	A	2	4501	D	3
2552	E	5	3521	C	4	3593	E	1	4502	F	4
2553	G	3	3522	F	4	3594	E	1	4506	B	6
2554	G	2	3524	F	4	3595	F	2	4508	G	3
2557	G	1	3526	F	5	3596	F	2	4509	G	3
2558	F	1	3527	C	4	3597	A	2	4510	G	3
2559	D	3	3528	F	4	3598	A	2	4511	C	1
2560	E	3	3530	E	2	3599	B	2	4512	B	6
2561	D	3	3531	E	5	3600	A	2	4513	B	4
2562	E	2	3532	C	5	3602	E	5	4514	B	4
2581	D	4	3533	D	5	3603	D	6	4515	D	5
2589	E	1	3534	E	5	3604	E	6	4517	C	5
2590	E	4	3535	D	5	3605	C	4	4518	B	5
2591	D	5	3536	E	5	3606	F	4	4519	A	6
2592	E	5	3537	C	5	3611	B	5	4520	A	4
2593	D	5	3538	C	5	3612	B	5	4521	B	3
2594	E	6	3539	C	5	3613	C	5	4522	A	6
2595	D	4	3540	D	5	3614	F	2	4523	B	3
2596	E	5	3541	D	5	3615	C	3	4524	F	4
2597	D	3	3542	D	6	3616	F	2	4525	E	4
2603	E	2	3543	D	5	3617	C	3	4526	B	5
2604	B	1	3544	E	5	3633	C	6	4527	G	4
2605	D	3	3545	B	3	3634	C	6	4528	B	6
2606	F	2	3546	A	3	3636	C	1	4529	A	4
2609	F	2	3549	D	5	3639	G	3	4530	B	5
2610	G	3	3550	E	5	3640	G	2	4531	B	3
2611	B	5	3551	D	5	3641	D	5	4532	F	6
2612	C	5	3552	E	5	3642	E	5	4533	A	6
2617	D	5	3553	C	5	3643	D	5	4534	A	6
2618	D	6	3554	C	5	3644	E	5	4535	C	5
2619	E	2	3555	D	5	3646	F	4	4538	C	6
2621	D	4	3556	D	5	3647	C	5	4539	F	2
2622	E	4	3557	B	5	3648	C	6	4541	B	6

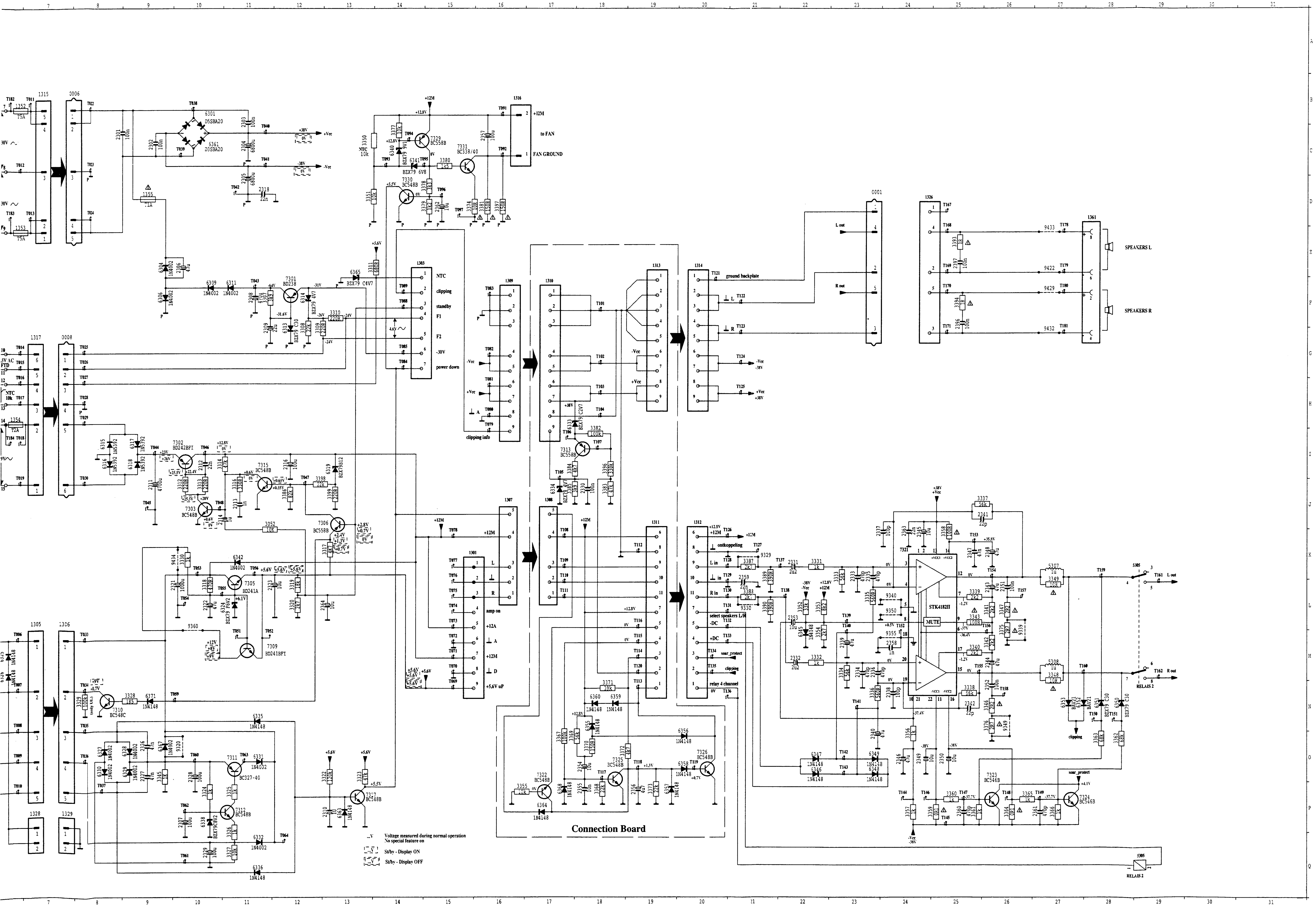
POWER 1 CIRCUIT STBY

(2x70W VERSION)



multiversion 230V/240V/120V UL
NEUTRAL
LIFE
overseas version with voltage selector
primary connection: drawposition 230V
SDKGA4
T3.15A
110V
10V
120V
t FUSE
30V ~
4.5V AC FTD
NTC 10k
19V~
DSSBA20
+38V
-38V
+Vcc
-Vcc
+12M
to FAN
FAN GROUND
BC558B
BC338/40
BC548B
BD238
BZX79 C4V7
NTC
clipping
standby
F1
F2
-30V
power down
clipping info
ground backplate
BD242BPI
BD241A
BD241BFI
BC548C
BC327-40
1N4002
1N4148
SPST - 9V
(only UL)
standby trafo /00 /17 /21
standby trafo /21
standby trafo /00 /17
L in
R in
onkoppeling
amp on
+12A
+5.6V uP
select speakers L/R
-DC
+DC
soar_protect
relay 4 channel
Connection Board
Voltage measured during normal operation No special feature on
Stby - Display ON
Stby - Display OFF

2329	O10
2330	J18
2331	K22
2332	M22
2333	K23
2334	M23
2335	K23
2336	M23
2337	K23
2338	N24
2339	M23
2340	O23
2341	J26
2342	N25
2343	L26
2344	M26
2345	K24
2346	O24
2347	K25
2348	K26
2349	O24
2350	O25
2351	L26
2352	N26
2353	L22
2354	O18
2355	P18
2356	P19
2357	C16
2358	M24
2359	K21
2360	P25
2361	P27
2362	D15
2363	K24
2364	L13
2396	F25
2397	E25
3052	J11
3301	N 4
3307	F11
3308	F12
3309	F12
3310	F13
3311	E13
3312	J10
3313	J10
3314	I10
3316	J11
3317	K13
3318	L10
3319	L12
3320	L12
3322	O13
3323	O13
3324	P10
3325	P11
3326	P11
3327	Q11
3328	N 9
3329	N 8
3330	K10
3331	K22
3332	M22
3333	K23
3334	M23
3335	L23
3336	N23
3337	J26
3338	N25
3339	L25
3340	M25
3341	L26
3342	M26
3343	L25
3345	O 9
3346	N26
3347	L26
3348	M27
3349	L27
3350	C13
3351	D13
3352	L22
3353	L22
3354	M22
3355	P16
3356	O24
3357	P24
3358	K25
3359	P25
3360	P25
3361	P25
3362	O28
3363	O28
3364	P26
3365	P26
3366	P27
3367	O17
3368	P18
3369	O17
3370	O18
3371	N18
3372	O18
3373	P19
3374	D15
3375	L26
3376	N26
3377	C14
3378	D15
3379	D15
3380	C15
3381	D16
3382	I18
3383	J18
3384	I17
3385	J17
3386	J12
3387	K21
3388	L21
3389	K21
3390	L21
3393	E25
3394	F25
3396	I18
3397	D16
3398	J12
3399	J13
5302	F 1
5303	M 4
5305	K29
5305	Q29
5307	K27
5308	M27
5311	G 1
6301	B10
6304	E 9
6306	F 9
6309	F10
6311	F11
6313	F12
6314	F12
6315	I 8
6316	I 8
6317	I 9
6318	I 9
6319	I13
6324	L10
6325	M 6
6326	M 6
6327	O 8
6328	O 9
6329	O 8
6330	O 8
6331	O11
6332	Q11
6333	H17
6334	J17
6335	N11
6336	Q11
6338	P10
6340	C14
6341	C14
6342	K11
6345	M22
6346	O22
6347	O22
6348	O23
6349	O23
6350	N28
6351	N28
6352	N27
6353	N27
6355	N18
6356	O20
6357	P19
6358	O20
6359	N18
6360	N18
6361	C10
6363	P13
6364	P17
6365	E13
6367	O 9
6368	P17
6371	N 9
7301	F12
7302	I 9
7303	J10
7305	L11
7306	J13
7309	M11
7310	N 9
7311	O11
7312	P11
7313	I17
7315	I11
7317	P13
7321	K24
7322	O17
7323	O26
7324	P27
7325	O13
7326	O20
7329	C15
7330	D14
7331	C15
9301	O 3
9302	O 4
9303	O 4
9304	F 3
9305	H 4
9306	H 4
9307	M 3
9308	G 2
9311	J 3
9320	O10
9329	K21
9330	L21
9339	L26
9340	L24
9349	N26
9350	L24
9355	M24
9360	L10
9422	E27
9429	F27
9432	G27
9433	E27
9434	K10


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1315
3006
1316
to FAN
FAN GROUND
NTC
clipping
standby
F1
F2
-30V
power down
clipping info
amp on
1317
3008
1305
1306
1328
1329
1301
1303
1307
1308
1309
1310
1311
1312
1313
1314
0001
1326
1361
ground backplate
L out
R out
SPEAKERS L
SPEAKERS R
onkoppeling
L in
R in
select speakers L/R
-DC
+DC
sour_protect
clipping
relay 4 channel
STK4182II
MUTE
RELAIS 2
Connection Board
Voltage measured during normal operation
No special feature on
St/by - Display ON
St/by - Display OFF